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कर्मण्येवाधिकारस्ते
My right is to my work

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Contents:

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"The prevalent fear of poverty among the educated classes is the worst moral disease from which our civilization suffers."
- William James

The purpose and method of learning Medicine

Digvijay S Timilsina

Correspondence to

Professor Digvijay S Timilsina
Principal and CEO
Gandaki Medical College Nepal.
principal@gmc.edu.np

Why work at all:

Before I discuss the pros and cons of medicine as a career I consider it worthwhile that prospective doctors decide why any work is needed. When I ask this question, the common responses are:

1. Name, fame and money.
2. Feeling of being useful.
3. Social service.
4. Fulfilling my pride.
5. Achieveing my desires etc.

Now all these have a common theme and that is satisfaction. Satisfaction is needed to be happy. To be happy the basic requirements are only two.

Humility: This is concept that acknowledges that I am not perfect. There will be someone or something superior to me in this world. This is the prime reason why believers are happy. They have acknowledged the superiority of God over themselves. This generates some kind of humility. Humility is the foundation for happiness. This acknowledges the right of others to speak differently from us. It ensures that we encourage and actively support people who think and act differently from us. It teaches us to celebrate diversity. It teaches us not to establish superiority on others based on different thoughts, education and social standing. Above all education must teach us to accept our mistakes. It should teach us honesty, integrity and dependability.

Usefulness: The other feeling that can generate happiness is the belief of being wanted and useful. Its to fulfill the need of this criteria that we need to do some work. We can firmly conclude that we all work because we want to feel useful. This gives us satisfaction and then we are happy. Any enterprise that serves others will give more of this feeling.

Why learn:

If the purpose of working was to feel useful and thence happy. The purpose of learning can be simply put as to prepare ourselves to do better in what ever we do. The target being to enhance competence so that more can be achieved. This will mean we can feel more useful. The most common cause of failure is performing beyond competence. We can only succeed when we perform inside our competence limits. Learning will increase competence and reduce the chance of failing. As succeeding will generate in us a feeling of usefulness rest assured failure will do the stark opposite.

Learning also means that it brings about change in behavior. If change in behavior or thoughts cannot be demonstrated after learning, we should critically question the utility of learning. The behavior change established after training and education should be predictable and measurable to some degree.

Criteria for a dream career

- **Opportunity to serve:** Allows you to help people.
- **Action:** Doesn't tie you to a desk all the time.
- **Respect:** You are an important part of your community.
- **Security:** Allows you a good living with a secure future.
- **Excitement:** Changes daily, so it's hardly ever boring.
- **Mobility:** You're in demand wherever you choose to live.
- **Flexibility:** Gives you lots of career options from the same education base.

When we consider the criteria for a dream career I must say that Medicine scores very high on all of them.

What do doctors do?

Most doctors' professional lives are filled with caring for people and continuously learning more about the human body. Every day in communities around the country, doctors work in neighborhood clinics, hospitals, offices, even homeless shelters and schools to care for people in need. Physician researchers are at work today developing exciting new treatments for cancer, genetic disorders, and infectious diseases like AIDS.
Academic physicians share their skills and wisdom by teaching medical students and residents. Others work with health maintenance organizations, pharmaceutical companies, medical device manufacturers, health insurance companies, or in corporations directing health and safety programs.
People with medical skills are in demand just about every where.

Getting in Medical School is not easy:

It takes hard work and commitment to make it to medical school. You must be extremely motivated. No one attains the level of devotion these entrance examination demand unless the motivation comes from inside. I am yet to see a student achieve these levels of success with forced study.

I am obliged to look for the following when selecting a candidate:

- Finest minds
- Most motivated students.
- Strong and demonstrated interest in working with people.

There are many sources for motivation

- Peer pressure.
- Parental counseling.
- Educational literature.
- Biographies / Role models.

Choose whatever suits you. I personally think that a prospective medical student will need them all. The major problem is most countries just cannot produce enough doctors that the nation needs. The projected incremental need for MBBS for Nepal is at 5000 per year. In the coming 10 years the most Nepal will produce is 2000 per year.
This stream is a very long road. You will need training for about 15 years

- MBBS 5 – 6 years.
- Masters +3 years.
- Sub specialist training + 3 years.
- Settling down average + 6 years.

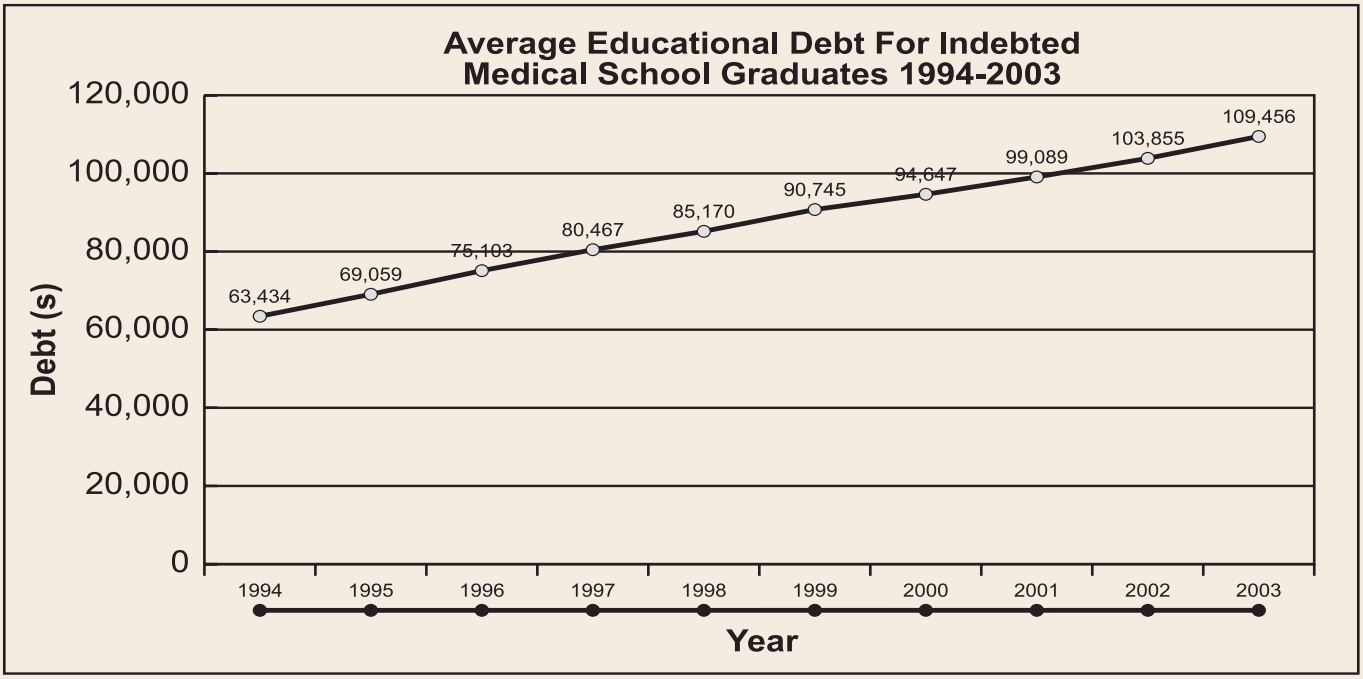
Total of 18 years after 10+2. Basically you begin work at 36-40 years of age.

Then this education is not cheap. The average expenses borne by a student in tuition fees is as follows

- USA ~ 150,000 USD.
- UK ~ 100,000 Pounds.
- Nepal ~ 30,00,000 NRS.

REMEMBER:

Even if you are a scholarship student tax payers have paid you fees. Debt will be incurred by the family, institution or the nation for each doctor produced.



Source: American Medical Association website.

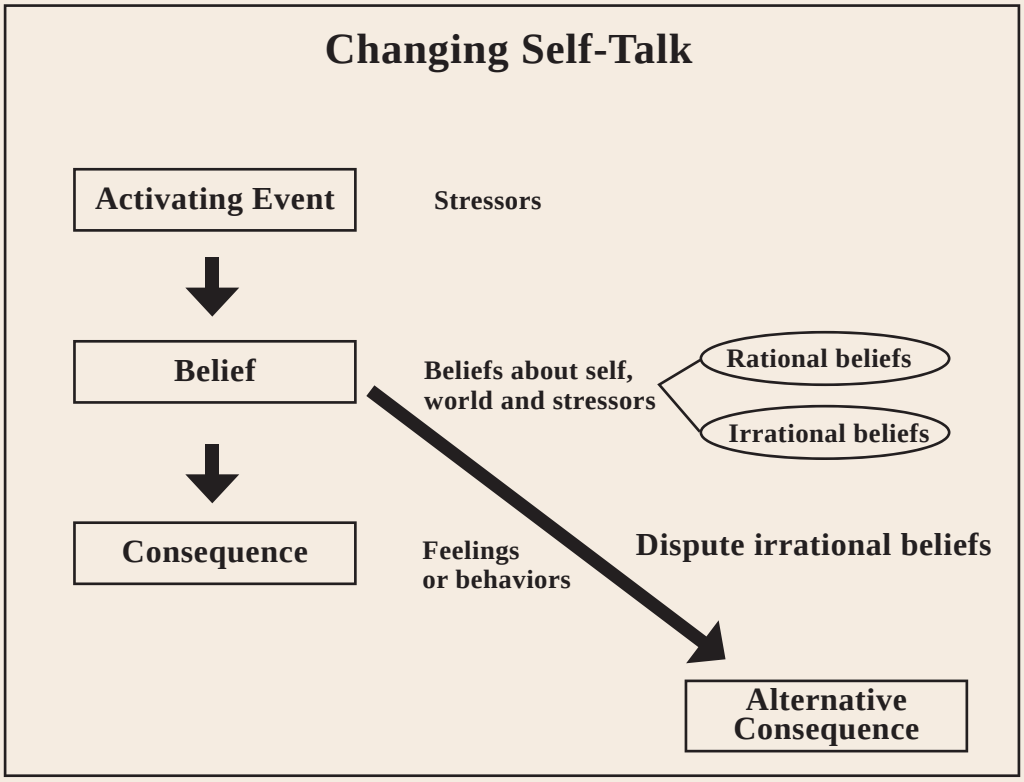
We can see that the debt for medical education is increasing with each passing year. It is estimated that over 80% of graduates carry educational debt. The median debt burden for graduates of public medical institutions has risen to $100,000 while that for private school graduates has increased to $135,000. 25% of students with educational debt report principle in excess of $150,000 and a significant minority reports debt as high as $350,000. Medical education debt was 4.5 times as high in 2003 as it was in 1984, growing well beyond the consumer price index. Over the past twenty years, median medical school tuition and fees have increased by 165% in private schools and by 312% in public schools. Between 2002 to 2003, students saw some of the largest tuition increases in history. Private school tuition increased by 5.7% while public school tuition increased by 17.7%. Keeping these figures American Association of Medical Colleges came out with this report
"In recent years, physician incomes have increased only slowly, and in constant dollars, the amounts have trended slightly downward." Therefore, while tuition and debt continue to outpace inflation, physician incomes continue to lag far behind. This has made medical education less and less affordable to students and their families. It also ensure that most doctors will be in financial stretches right from the beginning of their career. The most encouraging part is most doctors report a very high degree of happiness in spite of a state of minimal savings.

Presently Nepal is facing a downturn in the economy. We can assuredly expect some tightening of budget. Funding for medical education will be compromised especially in the public sector. Rescinding of scholarships will follow. Increases in tuition, mid-year and retroactive tuition hikes is the expected fallout. Only private sector can fill the gap between the requirement of medical graduates and their production.

Preparing for Pre Medical Entrance Test:

Most students preparing entrance to medical education will burn themselves out before the D day arrives. The major challenge is balancing the need to pass XII board and to prepare for the PMT in about 18 months (12 months for XII grade and 6 months preparation). Success is directly proportional to the amount of hard and smart work invested in. Time does not stretch. It will be 18 months for every body. Applying Preto principal 80% of focused work will yield 20% results and 20% of focused work will yield 80% results. That is where the smart work comes in. The most common cause of failure is performing beyond competence. We must increase our efficiency and competence to succeed. As stress burn out and fatigue before the D day are the reasons of most failures I will spend some space of my article on this issue. Burnout[1] is well recognized, and has a high cost for the individual, for colleagues and for the quality of service that patients get.
Doctors are more vulnerable than comparable professional groups to alcoholism, drug abuse and suicide.

- Stress leads to arousal
- Person selects a coping response
- If effective, relaxation of arousal
- If ineffective, arousal increases, resulting in strain
- Unresolved stress leads to burnout



(1) Time pressures.
(2) Excessive responsibility or accountability.
(3) Lack of support.
(4) Excessive expectations from yourself and those around you.

Any one or a combination of these factors can result in stress from overload. The key is not to try to avoid stress altogether, but to manage the stress in our lives in such a way that we avoid the negative consequences of stress! There are some defined casuses of overload

First time hit:
This will be very difficult and rewarding. Some ground rules will be needed.

- Select a subject (physics, chemistry, biology) you find easy to understand. Make a thorough revision.
- Select topics from your comfortable subject that are easy to understand. Make a thorough revision.
- Now, take up the remaining two subjects you find more difficult to follow. Study them.
- From your difficult subject, select easy topics. Revise them.
- From your comfortable subject, select difficult topics. Study them.

This makes clear that you must break up the monumental tasks into small units for achievement. Achieve your easiest goals and proceed to progressively difficult ones. Then you will have left about 20% task undone rest will be completed. Beginning form the difficult task ensures that you accomplish very littlie in the end.

- Revise class X (science subjects) and class XI chapters during holidays.
- Select topics from X and XI chapters that are usually covered in PMTs .

- Make separate registers for each of the three subjects (physics, chemistry and biology) and make notes under those topics. Gain a thorough understanding of the topics.
- After that, get to your class XII syllabus. It's clear that the XII syllabus forms the basis of all PMTs.
- With this effort, you will cover 80 per cent of the class XII syllabus. So, during your vacations you could prepare for PMT. Select frequently asked topics in PMT from all the three subjects of class XII. Gain in-depth knowledge of these topics.

Practicing MCQ

Solving MCQ is the backbone of getting into medical school. To become more efficient here you pick a MCQ book that you want to solve. Before any revision of theory for that subject begin your attempt to answer the MCQ. Give reason why you chose a particular response and why you rejected others for each question. Record these reasons in a register. Check your score. You will not need to revise the answers for the questions you scored correctly even without revision. You will keep getting them right in the future. Now begin concentrating on the questions you marked wrong. Revise your wrong reasons and start correcting your deficiencies. Your first go through the book will be very slow but the next time when you have to rely on your register only the speed picks up very encouragingly. With this method you do not waste time in relearning what you never forget anyway and concentrate on your weaknesses.

Who is suited for career in medicine:

Now this is as the Principal and CEO of a medical college. I will take students who score very high academically and fulfill most of my other requirements.

- Perfectionism
- Need for control
- Exaggerated sense of responsibility
- Difficulty asking for help
- Excessive, unrealistic guilt
- Suppression of feelings
- Difficulty taking vacations and enjoying leisure time

Enough intellectual ability to do the job. Honesty, integrity and conscientiousness, must be at the heart of good practice. Helpfulness and willingness to cooperate come close behind. The personal welfare of the profession is another consideration. This is the kind of person I would be very happy to enroll in my school.

Selectors point of view focuses on

Getting the right policy for admission to medical school is a balancing act. We have to be fair to society by choosing people with the potential to be good doctors. We also have to be fair to the applicants—that diverse group of people who for many reasons want to set out on the long road to a medical career.

The job of the selector is not easy. Selection is not an exact science. We must use what evidence we have to ensure that we do our best by all concerned. There is widespread agreement that we should select future doctors on wider criteria than scores of academic success The aspects of individual merit that are most

relevant to admission to medical school are hard to define. There is a strong case for the relevance of general intelligence. For most complicated tasks, intelligence is a good predictor of achievement. Selection based on previous scholastic success, essentially as a surrogate for intelligence, has generally served medical schools well. The predictive capacity of previous scholastic achievement, however, fades with progression through the course. Intelligence is multidimensional, and greater emphasis could be placed on some of its forms for example, emotional intelligence. The personal welfare of the profession is another consideration. Doctors are more vulnerable than comparable professional groups to alcoholism, drug abuse and suicide. This is why we need emotionally intelligent and robust candidates. Stable personality over adult life is a very important consideration.

Long-term studies of stability of personality characteristics have shown that personality traits exhibit high test-retest correlations over intervals of 6 to 45 years. At the highest managerial level IQ accounts for almost 70% of performance variability. So in demanding evidence of high IQ (even in the form of exam results) we have got something right. Predictability can be improved by including some measure of other factors.

Further factors consistently found to add to prediction of performance are integrity and conscientiousness: these do not correlate with IQ.

Additional predictability does not come from the number or nature of outside interests; years of education adds little to predictive validity; and the *number* of courses a person has been on is of no value (so much for how we measure 'continuing professional development'). Previous job performance adds to prediction for those already in the profession, but adds nothing at entry. Some of these results are counter-intuitive: this is because IQ overlaps with other things. So a quick learner will have good performance in a previous job which will correlate so highly with IQ that it adds little to predictive validity. Although virtually all students are high academic achievers at school, from the top 0.4%to the top 10%, school and medical exam scores do correlate, with contribution to variability reported between 16%and 58%.

There are some non academic predictors of academic failure[2,3,4]

1. Inadequate proficiency in English.
2. Minority community.
3. Female gender.

Conclusion:

- Medicine is a near perfect career.
- It is very demanding.
- Getting in, passing, performing and passing on the knowledge all are your job.
- Medical schools will be required to produce excellent professions and very able social leaders at the same time.

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It is indeed a pleasure to have this opportunity to congratulate the team from the Gandaki Medical College, especially Prof Digvijay for all the effort in making it possible to come up with an academic publication in the form of quarterly journal.

We all know that there is vast disparity in representation of less-developed country in the 'research' and 'publication', some due to biasness but more due to the fact that there is obvious lack of effort in writing and publishing the work. I've experience this first hand during last two years of my responsibility as chief editor of the 'JSSN - Journal of Society of Surgeons of Nepal', as is evident from the number of 'submissions'. The teaching schools and academics are no better in this regard as we can see from their representation in various conferences and publications.

We know that we are competitive when it comes to clinical work/skill but we do lag behind in publishing our work, and as the saying goes 'if it is not in writing it does not exist', so we do have to brave ourselves to put some extra effort in this field.

I wish all the success in your endeavor.

Dr Jay n Shah
Chief Editor, JSSN
MBBS, MS, FICS
Associate Prof, Surgery
Consultant Surgeon, Patan Hospital
drjaywufei@gmail.com, drjaywufei@hotamail.com

PURBANCHAL UNIVERSITY
OFFICE OF THE VICE-CHANCELLOR

☎ : 522165
Fax : 977-21-521204
Post Box No. 142
E-mail : purbuniv@bcn.com.np
BIRATNAGAR, NEPAL

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Prof. Digvijay S. Timilsina, Principal and CEO of Gandaki Medical College, Pokhara has urged me to write a brief note of message for the inaugural issue of the Journal of *Gandaki Medical College- Nepal*. I deem it a great honor to do so.

A close perusal of the names of internationally reputed medical doctors on the Editorial Board and of the titles of scientific and research-based papers to be published in the ensuing issue of the *JGMC/N* has convinced me thoroughly of the quality and value of the *Journal*. It is my considered view that the Journal would make a seminal contribution to the study of and research on medical sciences in Nepal.

I congratulate Prof. Timilsina on envisioning the new venture, and wish the *JGMC/N* success.

Prof. Ramawatar Yadav, Ph.D.

Vice Chancellor

Lead Article

Pitfalls in clinical management

Ms Sandy Anthony
Communications department, MPS

Dr Ming Keng Teoh
Head of Medical Services, MPS

Corresponding address
Dr Ming Keng Teoh, *MBChB, FRCSEd, FRCS, ChM, MSc(Health Mgmt), MFFLM, LLM*
Head of Medical Services – Asia
Medical Protection Society
33 Cavendish Square,
London
W1G 0PS
Email: ming.teoh@mps.org.uk

Abstract:
There is always the risk of something going wrong – with potentially devastating consequences – in the practice of medicine. While there is nothing to be gained by becoming over-anxious about the risks, you can take sensible precautions in your daily practice to enhance patient safety. The following advice is derived from MPS's long experience in the medicolegal field.

Adopt accepted practice

Accepted practice is easy to define in some areas – prescribing in accordance with the recommendations of a reputable formulary is an obvious example. Ideally, choice of treatment should be based on evidence (ie, determined by systematic methods based on literature review, critical appraisal, multidisciplinary consultation and grading of recommendations by strength of evidence). Accepted methods of investigation and treatment are often described by clinical guidelines. These improve the quality of clinical decisions, help replace outdated practices, provide a focus for audit of clinical practice, and provide benchmarks for clinical governance.

Of course, guidelines are guidance, not instructions or commands. They should be regarded as aids to – not substitutes for – clinical judgment and must be interpreted sensibly and applied with discretion. If you decide not to follow the guidelines and your judgment is called into question, you will have to demonstrate why you were justified in not complying with the guidelines. Conversely, if you follow respectable clinical guidelines and base your decisions on evidence, you will be in a very strong position if a complaint is made against you.

Act within your limitations

As a doctor, you will be expected to exercise a reasonable standard of skill and care at all times.

- Never undertake a task that is beyond your competence – when in doubt, seek help from a more experienced colleague.
- Ensure you have sufficient help and equipment available for any procedure you undertake, and for the management of all foreseeable complications.
- Ensure that you are familiar with the equipment that you are using or expecting others to use and that it is in full working order before beginning any procedure.
- Always explain to the patient what you are intending to do and why.

Delegate appropriately

If you need to delegate tasks to others, be sure that they are competent to undertake the task and are fully aware of all relevant information concerning the patient. Make sure that they are able to call on competent back-up if it is needed.

Keep comprehensive up-to-date records

The medical record is an essential component of patient care. It should contain sufficient information to "identify the patient, support the diagnosis, justify the treatment, document the course and results, and promote continuity of care among healthcare providers".[1] A good medical record should therefore provide all the information a newcomer to the care team would need to know about a patient and his/her treatment plan (see Box 1).

Box 1: Medical notes

Depending on the circumstances, the medical record should include the following:

- Sufficient information at the top of each page to identify the patient.
- Results of physical examinations, including relevant history.
- Clinical findings.
- Diagnosis or provisional diagnosis.
- Treatment given or ordered.
- Complications such as drug side-effects.
- Results of investigations and action taken.
- Signed consent forms and notes on key elements of discussions with patient to obtain consent.
- Advice given to patient.
- Referrals and provision made for follow-up.
- Details of the substance of all consultations and telephone conversations.

If you need to add to or correct a note at a later date, make it clear that you are introducing a retrospective correction. Any alteration to paper records should be clearly dated and signed. Do not obliterate the original entry – just run a line through it. Never try to rewrite notes at a later date. *Do not delete entries in computer records, but add annotations to them if necessary (and date and initial them if the software doesn't do it automatically).*

Do not write derogatory statements or criticisms about patients, colleagues or others; be as objective and factual as you can in making your notes. If you record any history provided by someone other than the patient, make sure you include the source – eg, "Has been 'confused lately' (daughter)".

Safeguards for procedures

Your hospital will probably have procedures in place for checking drugs and dosages before they are administered, identifying the part of a body to be operated on, counting swabs and instruments, and so on. It is important to follow these procedures carefully. It is too easy to become complacent and assume that they have been carried out competently, with resultant harm to the patient.

- Before carrying out a procedure, always check the patient's identity and look at the casenotes to establish the nature and site of the procedure, even if someone else has already prepared or marked the site.
- Familiarise yourself with your hospital's policy on ordering and administering blood products.
- Make sure that any specimens and accompanying forms or reports are accurately and fully labelled.
- See that all hazardous substances and waste are labelled with appropriate warnings.
- Think and act with awareness of the safety of others, eg disposing of sharps, placing hazardous substances out of reach of children, etc.

Medication errors

Medication errors can arise from any of the following processes - prescribing, dispensing and administration. Statistics from the UK, the US and

Australia show that medication errors are a major cause of avoidable harm to patients. The National Patient Safety Agency in the UK, for example, receives about 5,000 reports a month about patient-safety incidents related to medication. In an analysis of medication-related patient-safety incidents and clinical-negligence claims that occurred between January 2005 and June 2006,[2] incidents that resulted in serious harm or death of the patient (see Box 2 for examples) could be attributed to one of the following seven error types:

- Wrong dose/strength/frequency
- Adverse drug reaction
- Omitted medicine
- Contraindicated medicine
- Wrong medicine
- Patient allergic to treatment
- Wrong route

When writing prescriptions

- Be sure that the treatment is indicated.
- Check that the intended drug is not contraindicated and that the patient does not have a history of adverse reactions to it. Ensure that it will not interact with the patient's other medication and warn the patient about any potential interactions with over-the-counter medicines.
- Write legibly, taking special care if the drug name could easily be confused with another – use capital letters and give the generic rather than trade name.
- If you're not sure which of two similar-sounding drugs you should be prescribing, check with a senior colleague and confirm the correct spelling in a national formulary.
- Write clear and unambiguous instructions for dosage, frequency and route of administration, avoiding abbreviations and leading decimal points (see below).
- Note the prescription and any other relevant information (eg warnings given to the patient) in the medical record.
- Ensure that the patient is aware of what is being prescribed, and why.

Checking procedures

- If you are calculating a dose using a formula (eg mg/kg or $\mu g/m^2$), ask a competent colleague to check your arithmetic and placing of decimal points. Be particularly careful when calculating the dose of an unfamiliar drug.
- If a pharmacist or nurse questions a drug order or prescription, check it carefully – many problems are prevented by helpful interaction between colleagues.
- Always read the label on the bottle or vial before administering a drug or other substance such as water for injection.
- Never give an injection that you have not drawn up (or witnessed being drawn up) yourself (see Box 2).
- Establish the identity of the patient and double-check the prescription before administering medication.
- Confirm that the preparation is suitable for the route of administration – eg via intrathecal or intravenous injection.

Communication

- If you are prescribing medication to be administered by other members of the healthcare team, issue clear and unambiguous instructions – answer fully any queries they may have.

- Make sure that relevant people know what drugs the patient is taking and that they are told promptly about any changes.
- Ensure that you are aware of policies regarding verbal prescriptions (double-checking and documenting patient's name, medication, dosage and route of administration).
- Document the administration of medication (name, time, dose) in the appropriate place in the medical records.

Box 2: Some illustrative cases

A prescription for prostacyclin infusion was written in error for a baby when prostaglandin infusion was intended. This resulted in an excessively high does of prostacyclin being infused, which is known to cause hypotension. The baby, who was critically ill, exhibited hypotension that was relatively resistant to other treatments and, sadly, later died.

Isoprenaline was drawn up into a syringe but labelled as metaraminol in error. This was administered to the patient by the anaesthetist. The patient had a serious adverse reaction requiring resuscitation and cardioversion. The patient's condition stabilised after 40 minutes, surgery was cancelled and the patient was transferred to ICU.

(NPSA, *Safety in Doses: Medication Safety Incidents in the NHS* PSO/4 (2007) pp. 22, 23)

Prescribing for children

While all the foregoing advice on avoiding medication errors applies to both children and adults, special care is needed when prescribing, preparing and administering drugs to children. Drugs that are relatively innocuous in adults may have adverse effects in children. Variations in height, weight and body mass can make them more susceptible; or they may quickly accumulate toxic levels as a result of slower metabolism and excretion. In many cases referred to MPS, errors occurred because the doctor failed to check the appropriateness of the drug and its route of administration in children or infants, or to prescribe the correct dose.

Advice for safer paediatric prescribing

- Refer to a paediatric formulary when appropriate and always seek advice from colleagues if you are not sure.
- When writing a prescription include the child's age and write the exact dose in weight and (if liquid) volume required for administration.
- Always calculate doses on paper and get a competent colleague to check your arithmetic.
- When writing dosage, take special care not to lead with a decimal point – put a zero in front of it, eg, 0.2mg.
- Never abbreviate micrograms.
- For amounts less than 1 milligramme prescribe in microgrammes to avoid confusion over the placing of decimal points.

When prescribing for a child, it is particularly important to give the parents all relevant information such as:

- The name of the drug.
- The reason for the prescription.
- How to administer the drug safely (if appropriate).
- Any special storage requirements, such as refrigeration.
- Potential problems if the drug is not administered properly or at all.
- Common side-effects.
- How to recognise adverse reactions.

Parents must always be warned about side-effects, particularly those that will be distressing to the child (eg alopecia with cytotoxic drugs). It is also helpful to remind them of the importance of storing drugs in their labelled containers, and well out of children's sight and reach.

Administrative procedures

Errors have a tendency to compound themselves, so it is worth taking the time to ensure that essential tasks are carried out carefully (see Box 3). Many complaints arise from simple mistakes that could have been easily avoided. The most common administrative failures are:

- Failure to pass on important information.
- Failure to arrange appointments, investigations or referrals with the appropriate degree of urgency.
- Failure to review the results of investigations.
- Failure to arrange follow-up and monitoring.
- Mislabelling, misfiling and failure to check labels.

Box 3: Minimising risks to patients

Transfers of care. This includes shift handovers, transfers to other wards or departments, transfers between hospitals and discharge home. In all these scenarios, it is crucial that those taking over the patient's care be equipped with up-to-date key information. At a minimum, it should include diagnosis, treatment plans, medications, outstanding tests and test results.

Tests and investigations: When arranging urgent tests and investigations, let the lab know who they should contact with the results, especially if you are likely to be off duty by the time they are available (and be sure to let the incoming shift know). Make a note in the patient's record whenever tests and investigations are arranged, and record the results once they are available. Any abnormal results should be acted upon, not just filed in the notes.

Patient identification: make a habit of checking a patient's identity – either by asking the patient or checking the wristband – before administering any treatment. Do not use bay or bed numbers to refer to patients as these may change.

Record-keeping: record any crucial information as soon after the event as possible.

Failures of communication

Underpinning good patient care is good communication, and this goes beyond establishing good relations with patients. In today's team approach to delivering healthcare, communication has to extend to more people and there are therefore more opportunities for it to fail.

Keeping people informed in the interests of continuity of care must be balanced against the need to maintain confidentiality, and both these issues should be borne in mind when sharing relevant information about patients. Unless the patient asks you not to, it is entirely appropriate to share information about patients with people involved in their care.

Sharing care with colleagues

- In hospitals, proper handover and up-to-date progress notes should be considered an essential part of patient care.
- Nursing and other staff involved in patient care should be kept adequately briefed.
- If it is in the patient's best interests and you have his/her implied or express consent, welfare and voluntary agencies and family carers should be given any relevant information.

Recording essential information

Inadequate medical records are the underlying cause of many failures of communication – the records are the essential tool of communication between members of the multidisciplinary team. Subtle but significant changes may be missed when several different doctors see a patient over many days, unless adequate information is available from previous examinations.

What you include or leave out of the record is a matter of professional judgment, but you should take care to include all information that other members of the team will need to continue care of the patient safely. As months or years may elapse between treatments or illnesses and staff may have changed in the meantime, the records should also serve to reconstruct events at a later date without recourse to memory.

Communication between specialties

Referrals

Many referrals are made within the hospital setting and include other specialties (same hospital or others), other health professionals (eg speech therapists) and other agencies (eg social services and voluntary sector).

The patient (or the carer) needs therefore to understand the reason for the referral and have appropriate expectations. As part of the referral process, it is important to indicate the degree of urgency and provide all relevant clinical details. It also helps to indicate what the patient has been told (eg referral to a clinical oncologist).

Keeping each other informed

The divide between primary and secondary care is an area where communication can easily break down, particularly when patients are receiving long-term treatment. If the patient is being given ongoing care as an outpatient, it is particularly important to keep the GP informed about his or her progress and treatment, as they may have a bearing on the GP's own treatment of the patient (see, for example, the case reported in Box 4).

Box 4: Kept in the dark

A diabetic clinic in a teaching hospital diagnosed TB in a diabetic patient with a history of weight loss. He was admitted to hospital and, on discharge, was prescribed three months' supply of ethambutol, rifampicin, pyrazinamide, isoniazid and pyridoxine.

A month later he was seen in the diabetic clinic but there was no discussion of his TB treatment. He failed to attend his next appointment.

Three months after starting TB treatment, the patient began to complain of deteriorating vision and his GP made an urgent referral to the eye clinic. The GP had not yet received a discharge letter about the patient's last hospital admission for the treatment of TB, nor had the diabetic clinic informed him of the diagnosis so his referral letter to the eye clinic made no mention of of the fact that he was taking ethambutol.

The patient attended the eye clinic several times over a month, but no history of TB or of treatment for TB was obtained, his visual loss being attributed to diabetes. However, his vision continued to deteriorate and by the end of this period he was only capable of counting fingers. A week later the patient attended the diabetic clinic. Only then was the diagnosis of ethambutol eye toxicity raised.

The patient was seen immediately in the eye clinic where the diagnosis was confirmed and the ethambutol stopped, but by then he had sustained a permanent loss of 90 per cent of his vision.

Discharging a patient and arranging follow up

Ensure you are aware of your hospital's practices and policies when communicating with GPs.

If you are discharging a patient from hospital or from attendance at outpatient clinics, send the GP a letter containing all the information needed for continuing medical care. Make sure that the letter is sent promptly. You might also consider that other professionals – such as a community nurse – also need to be informed, but this should be on a need-to-know basis within the bounds of patient confidentiality and with the patient's consent.

Keeping patients informed

Patients who are kept informed about their condition and are involved in deciding on the appropriate treatment are more likely to comply with the treatment you suggest and less likely to complain if things go wrong.

It is particularly important that you tell patients about the possible side-effects of drugs or treatment you are ordering and that they know what complications to look out for and what to do if they develop.

Warn patients about the risks before carrying out any procedures or prescribing medication.

Do not neglect to tell a patient you are discharging from your care about arrangements you have made for follow-up care and give appropriate advice about what to do if symptoms deteriorate or complications develop. If patients are receiving long-term therapy, tell them when and where to return for review and what symptoms or signs of adverse effects or changes in their condition to report. If possible, give them an indication of when they might expect to see an improvement in their condition, and when to call in the GP if it doesn't transpire within a certain timescale.

Document any advice you have given the patient. It is useful to document in the record any supporting literature or written information given to the patient.

If things go wrong

There are three things that should happen when a patient's safety has been compromised. The most important is to take all necessary steps to minimise any harm to the patient and provide prompt advice and/or treatment where appropriate. The patient (or in the case of a young child, his parents) should be offered a full explanation and apology. Finally, steps should be taken to investigate what went wrong and identify and put in place any measures deemed necessary to minimise the possibility of a recurrence. Information about the investigation and its outcome should be communicated to the patient.

Even though we all know that to err is human, few of us can easily accept our own mistakes. This is probably more the case in medicine than in most other occupations, because errors can have such serious consequences. In a survey of MPS members who had experienced patient safety incidents in their practice, almost all of them found that it shook their confidence and eroded their job satisfaction. Complaints from patients tended to be taken as personal attacks, with the doctor feeling angry, hurt and betrayed. Some of these effects lasted for years.

The intensity and duration of the emotional aftermath does not seem to relate closely to the seriousness of the error or the nature of the complaint; the crucial factor is the ability of the individual doctor to put the experience into perspective and seek out practical and emotional support. Lessons can be drawn from this, as listed in Box 5.

Box 5: When things have gone wrong

- Assess the circumstances realistically – don't blow an error or a complaint out of all proportion; remind yourself of all the things you *do* get right and all the patients who *are* satisfied with your care.
- Talk the matter through with trusted colleagues and friends who can both empathise with you and give you a realistic assessment of the situation, but be careful to preserve patient confidentiality.
- Contact MPS for practical assistance in dealing with a complaint or claim and for advice about handling the emotional repercussions.
- Learn from the situation. If you did make a mistake, acknowledge it. Report it as a patient safety incident and engage in developing strategies to prevent a recurrence.
- If you have been unjustly accused of substandard care, think what may have brought the accusation about – was it a communication problem, for example? How might you have handled it differently?

If a patient has complained about you, try not to react defensively by avoiding the issue or making counter-threats. The complaint should be acknowledged, and the complainant should be told what is being done about it and when he/she can expect to hear the outcome of the hospital's investigations.

To aid the investigation and, depending on the nature of the complaint, you should give a full and frank account of events. Some complaints are minor and it may be possible for you to resolve it satisfactorily by dealing with the patient personally. It is important to document in the clinical record any discussions that you may have had with the patient and to seek advice if the matter turns out to be more complex than you had thought. The complaint may have arisen from a misunderstanding, in which case a clear explanation will usually put things straight, resolving the situation immediately. If a mistake has been made, do not hesitate to offer a sincere apology.

Patients expect a great deal from their doctors, not least of which are super-human abilities. This means that you are almost certain to disappoint some of your patients some of the time. All you can hope to do in the circumstances is to try and keep a sense of proportion; no doctor is infallible.

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Original Article

Improving Surgical Care Delivery: Black Book Concept in Surgery Rounds.

Ghimire P[1], Paudel P[2], Dawka S[3], Digvijay ST[4]

1 Consultant Surgeon
2 Medical Officer Resident.
3 Associate Professor Surgery
4 Professor Surgery

Correspondence to: Digvijay S Timilsina
Professor of Surgery
Gandaki Medical College Pokhara Nepal.
Email: (principal@gmc.edu.np)

Key words: Outcome, surgery, measure, quality.

Abstract:

Hypothesis: Keeping a track of unexpected outcomes will finally lead to improved quality of care provided in surgery.

Methodology: Maintaining a prospective record of all the unexpected outcomes detected in routine rounds.

Outcome measures: Quality of care was considered to be improving if total number of entries and repeat entries decreased. UE occurred in 25.21% of the admissions. 16.17% patients had a detrimental effect in some form of the other.

Conclusion: Maintaining records of unexpected outcomes and arriving at collective actionable feedback will lead to improvement in the quality of care provided. Most unexpected outcomes will be due to the slips or mistakes among junior doctors, nurses and other paramedical and clerical divisions. Such usually lead to delays in the care process. Senior doctors make the least slips or mistakes. The most common error among senior doctors was unavailability in the rounds. Major unexpected outcomes result when senior doctors slipped. Keeping a black book in the rounds will lead to improved quality as the entries do come down after second month of maintaining the book.

Introduction:

Consistency and clarity in reporting unexpected events (UE) is essential. Hundreds of tasks go towards patient care. Operative time, estimated blood loss, blood transfusion, length of hospital stay, time to return to work, or hospital charges are the traditional measures of the quality of care provided. These are so specific that we cannot rely solely on them to comment on quality of care delivered as a whole. Mortality and complications are often the sole data provided as a means of comparing surgical techniques or peri - operative management

decisions. The present focus for quality measurement as in Leapfrog or Quality surgical Solutions (QSS) is volume based and best practice standards for some procedures and extrapolating the findings to the whole hospital and the services it provides. This is a very useful measure. Since innumerable chores go towards patient care cataloging and analyzing all UE will be very difficult. If we shift the focus on the total number of UE encountered and non-repetition of an entry, it can be safely assumed that improvement is taking place. Such a method will be useful for third world hospitals and governments who do not have the budget and infrastructure to emulate Leapfrog and QSS methodology.

Materials and Methods:

From 2005-12-01 to 2006-03-31 a prospective register called the Black Book (BB) was maintained by Unit II, General Surgery, Manipal Teaching Hospital. It was mandatory to carry the BB in routine rounds taken 2 times / day by one of the consultants. Any round taken without the BB or no entries in the BB in the round was considered an invalid round and it was retaken. Everyone participating in the round (Nurses, Junior doctors, Consultants, Ancillary staff and Administrators) was encouraged to make entries in the BB. After each evening round the entries were dealt with on the find and fix principle. Actionable feedback was provided to every member of the team. For example if the unexpected outcome was due to administration then the actionable feedback was provided to everyone and was not limited to the administrators. Every attempt was made not to repeat an entry. Positive and amicable attitudes were encouraged in reporting and at the time of actionable feedback of every UE. Source of UE were classified as Ancillary staff, Paramedical staff, Junior doctors, Consultants and Administrators. Slip and Mistake were used to define mode of UE occurrence as propounded by Reason[1]. Task oriented behaviour are classified as Attentional and Schematic. The table below is explanatory

Behaviour Type	Features	Associated Error Type	Inducing Conditions	Examples
Attentional	Needs analysis planning, oversight. Generates mental effort, intellectual satisfaction. Very error prone.	**MISTAKE** Wrong rule applied. Failure to recognize pattern. Knowledge based mistakes. Wrong judgement.	Inadequate training and experience. Key information presented in ambiguous or inconsistent manner.	Misinterpreting signs of pulmonary embolus for pulmonary edema. Prescribing antibiotic that fails to meet bacterial flora.
Schematic	Automatic, repetitive, monotonous. Unrewarding. Needs oversight for best performance.	**SLIPS** Inappropriate persistence or lapse in automaticity. Unconcious fumbles.	Stress, fatigue, distraction. Inadequate oversight.	Telemetry observer fails to notice VPC. Nurse receiving numerous pages gives wrong drug to patient.

Table 1: Task Oriented Behavior
Adapted from Reason J: Human Error: Models and Management. BMJ, 320:768-770, 2000.

The classification of UE utilized was as:

1. Slip
2. Near miss.
3. Adverse Event.
4. Delay .

Impact of the UE was classified as (1) None. (2) Physical/psychological. (3) Hospital stay. (4) Others.

Results:

	Staff Nurse	Junior Doctor	Senior Doctor	Administrator	Others	Total
Slip	18 (18/73=24.65%)	47 (47/73=64.38%)	7 (7/73=9.58%)	0	1 (1/73=1.36%)	73
Near Miss	6 (6/16=37.5%)	2 (2/16=12.5%)	8 (8/16=50%)	0	0	16
Adverse Event	0	1 (1/11=9.09%)	10 (90.09%)	0	0	11
Delay	5 (5/20=25%)	0	0	15 (15/20=75%)		20
Total	29 (29/120=24.16%)	50 (50/120=41.66%)	25 (25/120=20.83%)	15 (15/120=12.5%)	1 (1/120=0.83%)	120

Table 2: Classification of UE in this series.

Its very clear form the chart that UE will happen: from all units of heath care system including the administrators. There were 120 entries in 3 months. Total patients were 476. This gives an incidence of (120/476) 25.21% of UE. Incidence of AE was (11/450) 2.31%.

41.66% of UE are due to Junior doctors closely followed by Nurses 24.16%, Consultants 20.83%, Administrators 12.5%. Significantly, 90.09% of the AE or real harm situations are due to Consultants. Junior doctors and Nurses account for 66% of UE. Fortunately, they are no harm situations. Consultant level UE are a real threat to patient. The most common UE with Consultants was found to be absence from rounds.

Staff nurse: Slip:18, Near miss:6,delay,:5
Delay- patient transfer, starting of medication, getting consultations done and report collection. Medication not given according order. Wrong medication –wrong drug , wrong dose, date expired drug. Poor post op monitoring- wrong recording, not recording. Not following orders- eg Foleys catheter removal done sometimes as late as 24 hrs and in one instance the order to remove IV cannula took 48 hrs.
Junior doctor: Slip: 47, Near miss:2, Adverse event:1
Not taking help when necessary. Incomplete assessment of patient's problems (co morbidities, associated injuries). Delay. Wrong treatment orders. Not ensuring that the orders were carried out.

Consultant: Adverse event:10, near miss:8, slip:7.
Absence in rounds. Wrong diagnosis. Wrong decision. Delayed decision. Incomplete transmission of information to juniors.

Others
Laboratory: Delayed reporting
Administration: Delay. Inavailability of equipments. Equipments out of order
Pharmacy: Date expired drugs being dispensed. Drugs not available.

UE	Month 1	Month 2	Month 3	Total
Slip	28	38	7	73
Nearmiss	5	7	4	16
Adverse Event	3	6	2	11
Dealy	8	7	5	20
Others	0	1	0	1
Total	40	50	30	120

Table 3: Frequency of the UE

All the UE and also in total were noted to peak in the second month. Then there was a definite decrese in the incidence of UE from the third month.

Impact	None	Physical	Psychological	Prolonged hospitalization	Economic	Death
Number	43	37	21	13	5	1
% age	35.83	30.83	17.5	10.83	4.16	0.83

Table: Impact of UE to the patient.

Impact to patient

UE had no impact to the patient in 35.83%. There was documented physical injury in 30.83% cases and documented Psychological trauma in 17.5% cases. Its very humbling to note that death happened in 1 case. UE will have some detrimental effect to the patient population in 64.17% cases.

Discussion:

The concept of learning from errors can be applied on individual, department and organization levels. An error is defined as the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim or delay in carrying planned action. Errors are important because of their potential effect on patient safety, psychology, cost, outcome and hospital stay. The traditional definition of quality of health care focusses on the appropriateness of the care provided. The authority (in terms of knowledge) for such appropriateness was viewed as the exclusive province of physicians. By the latter part of the 20th century, several factors had seriously eroded appropriateness (and physician authority) as the traditional indicator of quality. These factors are:

1. Persistent findings of unexplainable variations in the frequency of surgical procedures among small geographic areas.
2. Some procedures have a high incidence of inappropriate indications.
3. Variations in procedure frequency often relate to provider capacity (e.g., the number of hospital beds per 1,000 persons).

Not all bad outcomes for patients are due to medical errors. Likewise, not all adverse events that are the result of medical care are, in fact, errors. Some adverse events result from a complication that cannot be prevented given the current state of knowledge. Medical errors are adverse events that are preventable with our current state of medical knowledge. It is clear that the majority of medical errors today are not produced by

1. Provider negligence.
2. Lack of education.
3. Lack of training.

Rather, errors occur in our health care systems due to poor systems design and organizational factors. As in any other industry improvement of the systems by which medicine is practiced will therefore be necessary to reduce the incidence of medical error. Consideration of errors is usually expanded beyond preventable adverse events that lead to actual patient harm to include near misses, also sometimes referred to as close calls. A near miss is an event or situation that could have resulted in an accident, injury, or illness, but did not, by chance or through timely intervention. Since 1996 more than 8,000 new publications are added each week for reporting on complications in health care delivery[2]. Due to the vast amount of medical literature, variability in the quality of the reports is inevitable. It follows that arriving at conclusions will be difficult too. This is particularly important for endpoints, such as surgical complications, frequently mentioned as the reason for making changes in patient management. There is an excellent work by Martin II RCG et al [2.] This study was designed to critically evaluate the quality of the surgical literature as it relates to the reporting of complications. Of the 10 criteria developed, no articles met all criteria; 2% met 9 criteria, 38% 7 or 8, 34% 5 or 6, 40% 3 or 4, and 12% 1 or 2. Outpatient information (22% of articles), definitions of complications provided (34% of articles), severity grade used (20% of articles), and risk factors included in analysis (29% of articles) were the most commonly unmet quality reporting criteria. Type of study (RCT vs. retrospective), site of institution (U.S. vs. non-U.S.) and journal (U.S. vs. non-U.S.) did not influence the quality of complication reporting. This article supports our view that the process of reporting of UE itself is significant and the type of reporting does not really matter for quality improvement as a whole.

The current model characterizes quality in terms of three fundamental components:

(1) Structure (faculties, equipment, and services).

(2) Process (content of care).

(3) Outcomes.

The result is that the concepts of total quality management (TQM) and continuous quality improvement (CQI) are increasingly being applied to health care. Patient-centeredness is gaining emphasis as an aspect of quality. A patient-centered approach means that quality is viewed from multiple perspectives and need not be considered strictly with regard to morbidity or mortality. These perspectives often relate to the quality of life, not just the duration. In this context, health care quality is typically expressed in terms of quality-adjusted life years (QALYs), a measure that reflects the length of time for which a patient experiences a given health status. This measure is clearly applicable to clinical surgical practice.[3] Given the diversity of patient perspectives, there are several methods of quantifying QALYs. Some of them include objective measures (e.g., functional status), whereas others are based entirely on subjective estimates of well-being. The objective measures emphasize patient-desired outcomes and the meaningfulness of a given functional status. For instance, patient A may not be able to walk as far as patient B, but whether patient A has a poorer quality of life depends on the two

patients' individual perspectives on quality of life.[4] The quality of the evidence is also a crucial consideration. To distinguish between efficacy and effectiveness consider carotid endarterectomy. Randomized, controlled trials (RCTs) have shown this procedure to be efficacious when performed by surgeons with low rates of perioperative stroke and death. Whether carotid endarterectomy is effective, however, depends on whether the incidence of complications can be kept low: as the incidence of stroke and other complications rises, the procedure becomes less effective or even ineffective. Because effectiveness may vary over a relatively narrow range of outcomes, there are strong ethical reasons why surgeons ought to be familiar with their own results. If patients are to give truly informed consent, they should have access to information about their surgeon's outcomes in similar patients.[5]

Critical pathways (also referred to as practice guidelines) are increasingly used to standardize treatments and are particularly helpful for high-volume diagnoses. The economic impact of these pathways can be quantified through deviation-based cost modeling.[6] Reason has classified errors into slips and mistakes. Most organizations group these untracked slip-ups under the general heading of non-significant events. These events or minor incidents do not have a negative impact on patient outcome. Since these events are not significant from the patient's perspective, many facilities or departments treat disclosure of these events to the patient and/or substitute decision maker or family as discretionary. This is ignoring an opportunity for error prevention. We should always try to answer

- How common are errors?
- Can they be minimized?
- How do we tackle risk management ?

In assessing errors is we have a blame culture. It is hard to persuade people to report erros because of this blame culture. Many errors don't cause harm but they are as equally important as ones that cause harm. They indicate a breakdown in system, system failure or wrong decision. Do not ignore them. Once errors are recognized, their cause should be identified and analyzed. Its shown in the IOM report that 2% of all hospitalized patients suffer permanent injury/death due to medical errors.[7] This is a very humbling fact. Exposure to health care has more mortality than exposure to fire arms, RTA and other hazardous exposures.[8] We are all human – and humans make mistakes. This is simple and straightforward enough. Dr. Croskerry recognized that many diagnostic errors stem from cognitive errors, for example, those associated with failures in perception and biases[9]. Dr. Croskerry refers to these human tendencies as cognitive dispositions to respond, (CDRs). 32 CDRs have been indentified so far. They range from

1. **Anchoring** (tendency to lock onto salient features in the patient's initial presentation too early in the diagnostic process and failing to adjust this impression in light of later information).
2. **Aggregate bias** (when doctors believe that aggregated data, such as those used to develop clinical practice guidelines, do not apply to their patient, whom they believe is somehow exceptional or atypical).

Healthcare cannot, and must not be predicated on human perfection. Such an approach will inevitably produce errors. More tragically, those errors will be repeated.To learn from our own errors we first need to be aware that we have made them. The Department of Health publication '*An organization with a memory*'[10] emphasizes the importance of distinguishing between

1. Passive learning (where lessons are identified but not put into practice).A
2. Active learning (where lessons are embedded into culture and practice).

It suggests that active learning is needed.

Adequate time must be available for workers to follow the procedures properly

Learning from the errors of others is also valuable and increases the number of learning opportunities for each individual. However, as well as being subject to the same barriers as learning from our own errors, an additional barrier to learning from the mistakes of others is a culture in which medication errors are seldom admitted to or talked about.

We need to develop a culture in which we are more willing to talk about our errors with our colleagues and increase the opportunities to learn from them. Classic management textbooks such as "*The fifth discipline*" emphasize the importance of learning from experience at an organization level. It is concluded that, although there is a wealth of experience on analyzing and learning from adverse events at an organization level in industries such as aviation and nuclear power, there has been very little in health care. In order to learn from errors at an organizational level, errors must first be reported and then they must be analyzed in a meaningful way.

- Self reporting
- Multidisciplinary scheme

Once errors have been identified and reported , the next stage is to identify the causes of the errors so that changes can be made in practice. This is not as simple as it first seems due to a vast array of obstacles: What are we trying to accomplish? How will we know that any change is an improvement? What can we do to make a change an improvement? Check your idea (PDCA). We need a thorough approach to improving patient safety is needed. One single solution will not solve the problem. It will require thoughtful, multifaceted responses. The initial step is communication; to make everybody in the system understand how costly medical errors are. Much can be learned from the analysis of errors. All events, from serious injury or death to minor near misses should be evaluated to assess whether improvements in the delivery system can be made to reduce the likelihood of similar events occurring in the future. Full disclosure followed by effective analysis will help in the design of preventative measures.

To increase our opportunities to learn from errors the following three changes are required:

1. **A more open culture** is needed in which errors are openly discussed and reflected upon without fear of reprisal. Practical ways of increasing the opportunities to learn from our own and others' errors include discussing them at departmental meetings and circulating anonymized error reports.
2. A much **wider appreciation** is required of the value of focusing on the root causes of errors rather than on the individuals at the "sharp end" in preventing, analyzing, and learning from errors.
3. **Systems are needed** that allow us to identify errors and feed them back to those involved

Conclusion:

- No entry in black diary indicates either we are perfect or we are not identifying/problems or hiding them. Both are unacceptable situations.
- Chances that an error will result in harm is directly proportional to increasing hierarchy of health care providers. Errors from senior doctors will be more harmful than junior doctors.
- Concept of black diary is a spectrum, focused on medical errors, ranging from root cause analysis to outcome measure.

- Medical errors should not be justified by lack of therapeutic option or likely outcome. Statement like this patient would have died anyway are Unaccepatable.
- Errors will never disappear from medical practice but our aim is to ensure that they occur as rarely and as humanly as possible.
- Stop naming, blaming and shaming culture.
- Tracking your records and analysis will lead to improvements in quality.

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Original Article

A study of acute coronary syndrome in western region of Nepal

Badri Paudel[1], Lecturer Klara Paudel[2], Lecturer Raju Paudel[3], Resident Pa Gaurav Shrestha[4], Abhisek Maskey[5], Intern Om Biju Panta[6]

* Department of Medicine, Manipal Teaching Hospital (MTH), Pokhara, Nepal
[1] Assistant Professor, Dept. of Medicine, MTH

Corresponding author: Dr. Badri Paudel, Assistant professor, Department of Medicine, Manipal Teaching Hospital, Pokhara, Nepal. email: badribmu@gmail.com

ABSTRACT

Introduction: The term "acute coronary syndrome (ACS)" encompasses a range of thrombotic coronary artery diseases (CAD), including unstable angina (UA) and both ST-segment elevation (STEMI) and non–ST-segment elevation myocardial infarction (NSTEMI). Diagnosis requires an electrocardiogram and a careful review for signs and symptoms of cardiac ischemia. **Aim:** To determine the presence of conventional CAD risk factors (diabetes mellitus, cigarette smoking, hypertension and hyperlipidemia) in patients with acute coronary events and to assess contemporary data on management and outcomes of patients with ACS in western region of Nepal. **Methods:** We performed an observational study of 153 patients hospitalized due to ACS, retrospectively enrolled in Manipal Teaching Hospital (MTH), a tertiary hospital of western region of Nepal during March 2006 to May 2007. Patients were categorized into UA, STEMI or NSTEMI, based on clinical, ECG and enzymatic criteria. The conventional risk factors of CAD and management of ACS in CCU/ICU and outcome of treatment were recorded. **Results:** Patients' mean age at presentation was 64.2 ±12.1 years. The initial diagnoses from these 156 patients were UA in 43.1%, NSTEMI 10.5%, and STEMI 46.4%. Males were most frequently represented in STEMI (62%), NSTEMI (75%) than UA (39.4%). Patients with UA, NSTEMI had higher incidence of Diabetes and Hypertension and history of prior CAD than STEMI parents, who were more likely to be current/ex- smokers. Cardiac arrest immediately after admission most frequently developed in patient with STEMI. Acute heart failure (Killip Class III- IV) occurred with similar frequency in UA and STEMI. However cardiogenic shock dominated in STEMI patients. Median duration of hospitalization was 8.08 days in UA, 7.87 days in STEMI, and 6.81 days in NSTEMI. In hospital mortality was 27(17.6%) and was more common with STEMI (21 out of 71 patients).
Conclusion: Smoking, diabetes and hypertension are leading risk factors, which may directly or indirectly interfere and predict more serious complications of ACS.

Keywords: Acute coronary syndrome, Unstable angina, Myocardial infarction, Risk factors

Introduction

The term "acute coronary syndrome (ACS)" encompasses a range of thrombotic coronary artery diseases (CAD), including unstable angina (UA) and both ST-segment elevation (STEMI) and non–ST-segment elevation myocardial infarction (NSTEMI). The initial diagnosis of ACS is based on a careful review for signs and symptoms of cardiac ischemia, risk factors, and, to a lesser extent, ECG findings. The symptoms are due to myocardial ischemia, the underlying cause of which is an imbalance between supply and demand of

myocardial oxygen. The process central to the initiation of an ACS is disruption of an atheromatous plaque. Fissuring or rupture of these plaques and consequent exposure of core constituents such as lipid, smooth muscle, and foam cells leads to the local generation of thrombin and deposition of fibrin. This in turn promotes platelet aggregation and adhesion and the formation of intracoronary thrombus. This study was carried out to determine the presence of conventional CAD risk factors (diabetes mellitus, cigarette smoking, hypertension and hyperlipidemia) in patients with acute coronary events and to assess contemporary data on management and outcomes of patients with ACS in Manipal Teaching Hospital (MTH), a tertiary hospital of western region of Nepal.

Materials and methods: We performed an observational study of 153 patients hospitalised due to ACS, retrospectively enrolled in MTH during March 2006 to May 2007. Patients included were males and females of all age groups and diagnosed to have CAD. Based on clinical presentation, initial electrocardiographic pattern, and markers of myocardial necrosis acquired at least 6 hours after the symptom onset the patients were then classified as having UA, NSTEMI, or STEMI.

Information was obtained from the archived data sheets about patient demographic characteristics and medical history concerning their age, sex, history of diabetes, duration of diabetes, hypertension, smoking, previous hospital admissions, previous ACS, treatment modalities of CAD and diabetes, and revascularization. Laboratory data including myocardial enzymes, serum triglycerides and total cholesterol, high-density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C) levels, random glucose levels were collected. Diagnosis, type of MI, management and, in-hospital outcomes were also recorded.

The criteria for the diagnosis of MI, type of MI, and unstable angina were based on clinical presentation, biochemical makers of acute ischemic injury, and electrocardiographic findings. Although there is no universally accepted definition of unstable angina, it has been described as a clinical syndrome between stable angina and acute myocardial infarction. This broad definition encompasses many patients presenting with varying histories and reflects the complex pathophysiological mechanisms operating at different times and with different outcomes. Three main presentations have been described as angina at rest, new onset angina, and increasing angina.

Patients were classified as diabetics and hypertensive based on the review of medical records. Dyslipidemia was defined according to ATPIII.
153 out of 560 patients who were admitted to the CCU/ICU during interested period were included in the study. Patients with congestive heart failure, cardiomyopathy and severe comorbids and patient who were admitted due to known valvular disease were excluded. Statistical data are expressed as Median (range) or Mean (± Standard deviation) for continuous variables or as rates (percentage) for categorical variables. The data was entered and analyzed using the SPSS software.

Results

The study included 153 patients with ACS out of 560 patients admitted to CCU/ICU of Manipal Teaching Hospital (MTH), a tertiary hospital of western region of Nepal from March 2006 to May 2007. Patients mean age at presentation was 64.2 ±12.1 years. Majority (53.6%) were males. The initial diagnoses from these 156 patients were UA in 43.1%, NSTEMI 10.5%, and STEMI 46.4%. Baseline demographic and clinical characteristics including conventional risk factors of CAD are presented in Table 1.

Table 1. Baseline demographic and clinical characteristics of patients with ACS

	UA (n=66)	STEMI (n=71)	NSTEMI(n=16)
Age ($\overline{X}$ ±S.D.)	63.71±13.45	64.77±10.80	63.75±12.96
Male gender	26 (39.4%)	44 (62.0%)	14 (75.0%)
Smoking(current/ex)	41 (62.1%)	54 (76.0%)	10 (62.5%)
Previous CAD History	25 (37.9%)	8 (11.3%)	2 (12.5%)
DM	12 (18.2%)	9 (12.7%)	3(18.8%)
HTN	42 (63.6%)	33 (46.5%)	9 (56.3%)
Alcohol	17 (25.8%)	22 (30.7%)	7 (43.5%)
Dyslipidemia	5(7.6%)	0	0
Obesity	1(1.5%)	1(1.4%)	0
Average Hospital Stay days	8.08±3.90	7.87±4.46	6.81±2.86
Mortality	5 (7.6%)	21 (29.6%)	1 (6.3%)

ACS was more frequent in hypertensive patients (59.4%); and smokers (68.6%). Males were most frequently represented in STEMI (62%), NSTEMI (75%) than UA. Patients with UA, NSTEMI had higher incidence of Diabetes and Hypertension and history of prior CAD than STEMI patients, who were more likely to be current / ex smokers. Table 2 clearly demonstrate that within the age of 40 years 6 cases had ACS while 51-70 years of age group represents peak age group of ACS (87 cases;)

Table 2. Age distribution in ACS

Age (years)	UA	STEMI	NSTEMI	Total
<40	3	2	1	6
41-50	9	5	2	16
51-60	13	19	3	35
61-70	21	25	6	52
>71	20	20	4	44
Total	66	71	16	153

Hemodynamically and ECG findings on admission are shown in Table3. Cardiac arrest immediately after admission most frequently developed in patient with STEMI. Acute heart failure (Killip Class III- IV) occurred with similar frequency in UA and STEMI. However cardiogenic shock dominated in STEMI patients. UA patients had low rate of severe hemodynamic disturbances on admission. Ventricular tachycardia (VT) were more often seen in STEMI while atrial fibrillation (AF) in UA. Median duration of hospitalization was no significant different among the ACS cases Table 1. In hospital mortality was 27(17.6%) and was more common with STEMI (21 out of 71 patients)

Table 3. Complications of ACS

Complication	UA (n=66)	STEMI (n=71)	NSTEMI(n=16)
1. No complication	37	30	8
2. Acute heart failure	14	18	3
3. Bradycardia ± heart block	9	8	3
4. Cardiogenic shock	2	8	0
5. AF	3	1	0
6. VT	1	4	1
7. SVT	2	2	1
8. Sudden death	1	2	0

ACS was most common in anterior wall and inferior wall than any others wall (Table 4). Out of 27 fatal outcome cases 12 cases had extensive anterior wall and 7 cases had inferior wall with or without posterior wall involvement. 21 cases had STEMI which clearly demonstrates that STEMI developed most serious complication including acute heart failure and cardiogenic shock and different degree of heart block which are the poor prognostic factor of outcome of ACS.

Table 4. Involved walls in ACS

Involved wall	UA (n=66)	STEMI (n=71)	NSTEMI(n=16)
1. Septal	0	0	0
2. Anterior	0	0	0
3. Lateral	6	0	2
4. Anterio-lateral	10	3	3
5. Anterio-septal	2	12	1
6. Extensive Anterior	13	22	1
7. Inferior ± posterior	14	22	4
8. Inferior + extensive anterior	19	5	2
9. Right ventricular ± inferior	0	7	0

DISCUSSION

Patients with symptoms of ACS are very common in emergency departments. Cardiovascular diseases have emerged as a major health burden in developing countries.[1] In the year 2003, 16.7 million people died from CVD, accounting for 30.3% of all deaths worldwide.[2] .More than half of CVD deaths were in developing countries. The population of South Asia (Pakistan, India, Bangladesh, Nepal and Sri Lanka) represents more than a quarter of the developing world, and is likely to be strongly affected by the increase in CVD.3 Although the exact incidence of ACS in US is difficult to ascertain, hospital discharge data indicate that 1,680,000 unique discharges for ACS occurred in 2001. In Britain, annual incidence rate of angina is estimated at 1.1 cases per 1000 males and 0.5 cases per 1000 females aged 31-70 years. In Sweden, chest pain of ischemic origin is thought to affect 5% of all males aged 50-57 years.[4] In our country there is no such nationwide registry undertaken, so the exact data are not available, however it is believed that 10% of all the deaths are due to CAD.[5] prevalence of ACS is around 436 in every 100,000.[6] With increasing affluence and facilities of life, there is a definite change in life style and there is more and more tendency for sedentary habits. Exercise and outdoor activities seem to have decreased. As a consequence, cardiovascular diseases like myocardial infarction and stroke have become the leading causes of morbidity and mortality in south Asia.[7]

This is the first prospective registry undertaken in western region of Nepal, in which the full spectrum of ACS is represented. Manipal teaching hospital is the 700 bed, only tertiary hospital of western region, and most of the cases of ACS are routinely send from all the local hospitals of this region to our institute for the further management. So we believe that delivered data are presumed to accurately portray patient characteristics and clinical practice of this region. Since the research was conducted after 2006, it also has the advantages of enrolling patients according to the new MI definition utilizing troponin, and of reporting on the use of medications advised by the latest ACC/ American Heart association (AHA) guidelines.[8, 9]

Based on this study the typical profile of patients would be that the majority are males, with a mean age of around 64 years, presenting with chest pain and having smoking, hypertension followed by diabetes as the major risk factors. They are also likely to have family history of hypertension, IHD and diabetes. In addition 22 (14.7%) patients of our patients were below 50 years of age. Majority of the patients had Unstable Angina and STEMI in equal proportion as the types of ACS.

At first, comments should be made on distribution of the initial diagnosis of ACS. In our study, 43.1% of patients were diagnosed as having UA. The others were diagnosed as having MI, with slightly more STEMI (46.4%) than NSTEMI (10.5%). The recent data from Europe show a lower proportion of UA among ACS patients.[10, 11] Thus, it is possible that some of the patients were overdiagnosed because the criteria for UA were rather liberal and did not require ECG changes. In fact, typical ischaemic ECG abnormalities were present only in about 60% of UA patients. However, they were managed as UA patients with all the ensuing consequences. One of the unresolved problems in managing patients with ACS is that a significant number of them are hospitalised in non-cardiology wards (mostly internal medicine ones), where accessibility to recommended treatment is limited.[10, 12]

ACS becomes progressively more common with increasing age. When compared to patients from developed countries, our ACS patients are about a decade younger.[13] This can be explained partly by the fact that in Nepal population structure is young.

Moreover CHD is the leading cause of morbidity and mortality in patients with diabetes, hypertension, dyslipidemia and smoking and are the poor prognostic factor in ACS.[14, 15] Our data also shows that patients with diabetes and hypertension more likely experience UA and NSTEMI while smokers were more likely to get STEMI. Our data concerning higher prevalence of MI and male sex predominance in ACS patients is consistent with report from multinational observational Global Registry of Acute Coronary Events (GRACE).[11] They were older and more likely to be current/ex cigarette smokers.

Among all the conventional risk factors of CAD, only 5 cases (3.3%) had dyslipidemia and 2 cases had obesity which was significantly less common. The reason behind such finding might be the population structure that very few people are obese in compare with the western region. The another strong reason might be that all the lipid profiles blood sample were collected in the next day of admission as a fasting blood sample, meaning that blood samples were generally collected after 16-24 hours of onset of the ACS. As we know many studies. [16- 21] In the past few decades have shown that acute MI results in a significant decrease in the serum levels of total cholesterol, LDL cholesterol, and HDL cholesterol. The acceptable time for the measurement of plasma lipids after an acute MI is within 24 h after the onset of symptoms, and the plasma lipid levels measured beyond 24 h are mostly considered to be invalid.[22, 23]

The post-MI decline in serum cholesterol occurs because of the acute-phase response and is of greatest extent by days 4 to 5 post-MI.[24, 25] Acute MI, like any other tissue injury, initiates various local and systemic reactions. The local response includes vasodilation, leukocyte infiltration and chemotaxis, monocyte and macrophage activation, and cytokine release. The cytokines act on the systemic targets, including the liver, to generate changes in the concentration of various heterogeneous plasma proteins that are known collectively as acute-phase reactants, including lipoproteins and C-reactive protein.[26, 27]

By day 4 to 5 post-MI, there is a significant decrease in the serum concentrations of apoprotein A-I and apoprotein B, reflecting the maximum decrease in the serum cholesterol level by this time. While the serum cholesterol level decreases after an acute MI, the serum triglyceride level increases. This paradoxical rise in serum triglycerides is due to an increase in serum C-reactive protein level, which may increase to levels that are several hundred-fold higher than baseline 4 days after an MI.[26] Therefore, in situations in which plasma lipid levels are not determined within 24 h of the onset of MI symptoms, the cholesterol measurements are usually deferred until the effect of the acute MI is fully resolved, which may result in an inappropriate delay in the management of hypercholesterolemia.

Conclusion: It seems that among the conventional risk factors smoking, hypertension, diabetes and prior history of CAD are responsible for a major disease burden for ACS in our set up which contribute to morbidity and mortality. These require a better control. The awareness of risk factors amongst the general public is low. Thus there is an urgent need to create more and more awareness about the preventive aspects and healthier life style behavior in the community

Limitation of the study

There are several limitations of the study. Medium and longer term outcome of these patients is not available. Also not available are the details of angiographic studies which were done subsequently in some patients as a part of investigations. As the study was not mandated to look at the mortality after AMI, the number of in-hospitable deaths reported is low and could well be inaccurate.

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Original Article

Lessons Learnt : General Surgeons Providing Neurosurgery.

Prakash P[1], Dawka S[2], Digvijay ST[3] .
1. Medical Officer Resident.
2. Associate Professor Surgery
3. Professor Surgery

1,2 Department of Surgery, Manipal Teaching Hospital. Pokhara, Nepal.
3 Gandaki Medical College, Pokhara Nepal.

Correspondence to: Digvijay S Timilsina
principal@gmc.edu.np

Abstract:
Hypothesis: General surgeons will be required to provide neurosurgical procedures and complications will happen. They should also be prepared to take on the complications. Comparisons of the outcomes with specialist units are inappropriate.
Methods: Prospective computerized database for all patients undergoing neurosurgery admitted and operated on in Unit II general surgery of Manipal Teaching Hospital (MTH), from 2002/03/03 till 2005-12-31.
Outcome measures: Classification of outcome as Improved discharged, Improved referred, Deteriorated referred and Died.
Results: Outcome varied with the operating surgeon, indications, GCS at admission.
Conclusion: General surgeons will be required to provide neurosurgery in Nepal. They should also be prepared to take on surgically correctable complications. Outcome will vary with operating surgeon, indications, GCS at admission. Aggressive management of the complications will improve outcomes.

Introduction:
Nepal has five certified neurosurgeons. Most of them are stationed in Kathmandu. Hospitals all over Nepal are obliged to provide neurosurgery for trauma. Manipal Teaching Hospital, Department of General Surgery, Unit II began to provide protocol based neurosurgical management for head trauma. Later the services also included some elective cases. These cases would be deprived of surgery if referred.
Our clinical indications for surgery were:

1. Established presence of ICH (Intracranial Hematoma excluding Intracerebral Hematoma) and
    a. Clinical signs of raised ICP.
    b. Localizing signs.
    c. Falling GCS.
    d. Asymptomatic EDH if more than 30 ml volume.
2. Compound depressed # skull.
3. Hydrocephalus.
4. Spinal conditions.

When one of the above mandatory clinical conditions were met, we checked for our non clinical conditions:

1. They needed immediate evacuation.
2. Transfer to Neurosurgical center was not possible due to socio-economic factors.
3. Travel time would cause harmful delay.

This unit tried to provide a neurosurgical procedure that the patient would be deprived of unless done here itself especially for socio-economic reason. There are many papers comparing the results of neurosurgical procedures between general surgeons and specialist neurosurgeons. This should be the first one in Nepal that focuses on the complications generated by this extremely difficult situation.

Materials and Methods:

Manipal Teaching Hospital, General Surgery Unit II, maintains a prospective computerized database for all the neurosurgical procedures performed in the unit. Each patient gets a unique hospital number that does not change with each visit to the unit. All the records are stored in Medical Records Section of this hospital. The database is maintained in MS Access, Microsoft Windows 2000. It maintains registers for Admission, Surgery, Discharge and Complications. Statistical analysis is done by the package tools in MS Excel, Microsoft Windows 2000. Query was set up in the Surgery register using the key word "Neurosurgery". Limits were set for Burrhole, Craniotomy, Spine, Hydrocephalous. Time limit was set for 2002-07-14 to 2005-12-31. The records returned were linked to Admission, Discharge and Complications and the data analyzed. Outcome measures were limited to a) Improved, discharged b) Improved, referred c) Deteriorated, referred and d) Died. Complications were grouped in Wound infections and Revisits to OR (Operating room)

Results:

From 2002-07-14 until 2005-12-31, the database returned 35 case files and 42 OR visits. The age ranged from 2 months to 80 years with a mean of 35 years. The hospitalization period ranged from 2 days to 108 day with a mean of 15 days. There were basically four procedures offered

Procedure	Number
Trans thoracic decompression:	1
Tracheostomy	1
Ventriculoperitoneal shunts:	4
Craniotomy	21
Burrhole	14

Table 1: Number and types of procedures performed. (Note if tracheostomy was done in ward or by ENT department it was not recorded.)

Only 5/42 (12%) OR visits were for non traumatic etiology.

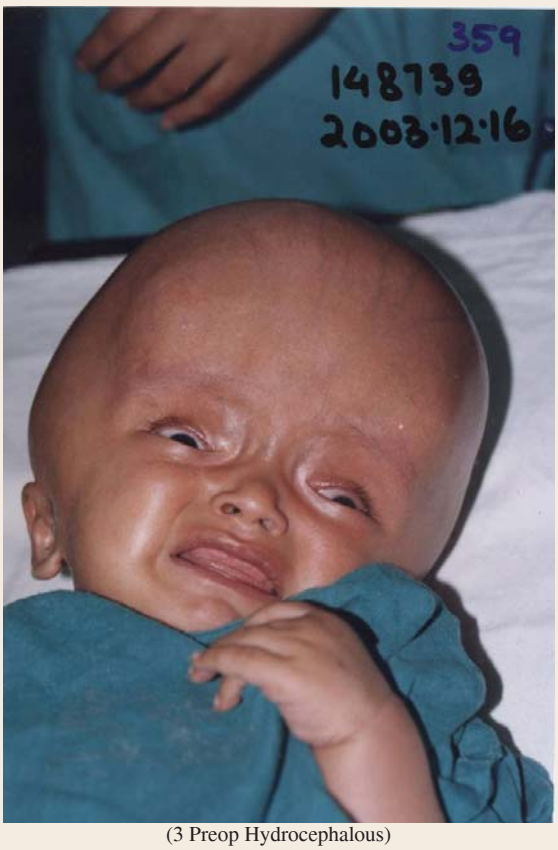
1. One transthoracic decompression of spine.
2. One hemophiliac baby with spontaneous SDH.
3. Three VPS (Ventriculo Peritoneal Shunt) in 2 patients.

We were required to decompress the spine only once. This was a 22/male with carious spine and paraspinal abscess leading to paraparesis (See Fig 1, 2). Transthoracic decompression was performed. VPS accounted for

(1 CXR Paraspinal Abscess)

(2 CT Scan paraspinal abscess)

4/42 (~1%) of our OR visits. 4 VPS were inserted in 3 patients. 2 cases were congenital hydrocephalous (Fig 3, 4). One was post traumatic hydrocephalus. We had to revisit the OR once to replace a migrated VPS. (Fig 5 to 10).



(3 Preop Hydrocephalous)

(4 Immediate Post op VPS)

(5 Initial CT Hydroephalous of 2004-05-03)

(6 CT same pt 2005-07-21)

(7 Preop showing displaced VPS)

(8 Preop showing displaced VPS)

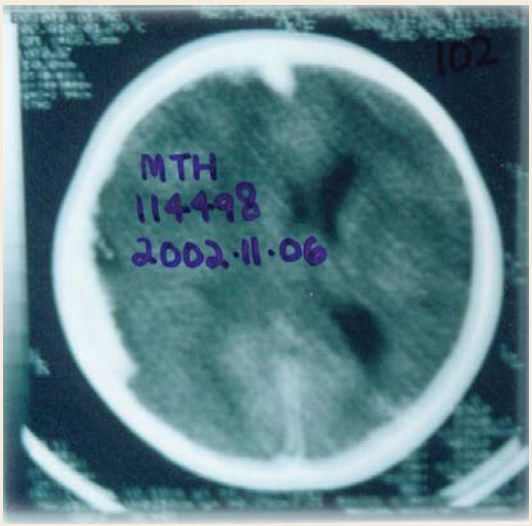
(9 VPS replaced)

(10 VPS functioning)

Outcome	Improved Discharged	Improved Referred	Deteriorated Referred	Died
Number	26 (74%)	01 (3%)	03 (9%)	05 (14%)

Table 2: Distribution of outcome measures.

37/42 (88%) of the OR visits were for trauma. ICH (Intra cranial hematoma) contributed to 37/42 (88%) OR visits. Only one ICH was non traumatic (hemophiliac baby with spontaneous SDH) Fig 11-15. Desirable outcome defined for our purposes as ID (Improved and Discharged) and IR (Improved and Referred). This consisted 27/35 (~77%). Undesirable outcome defined as DR (Deteriorated and Referred) and DD (Died) was seen in 8/35 (23%). GCS on admission was very powerful determinant of outcome measure.11/35 (31%) patients had GCS score 8 or less. In this group Desirable outcome (ID/IR) was seen in 6/11 (55%) and undesirable outcome 5/11 (45%) cases. The distribution of admitting GCS is shown in Fig 16. If admitting GCS was 9 -15 desirable outcome was seen in 21/24 (87%) and undesirable outcome was seen in 3/24 (13%) cases.

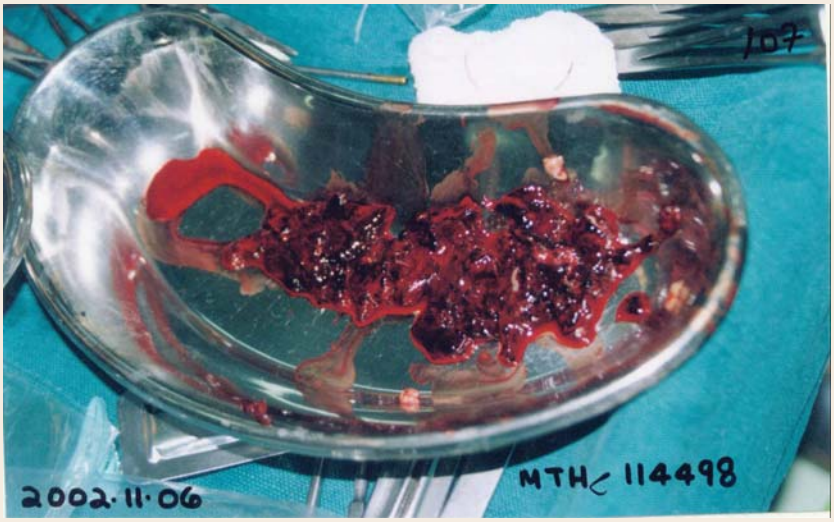


(11 CT of spontaneous SDH in Hemophiliac baby)

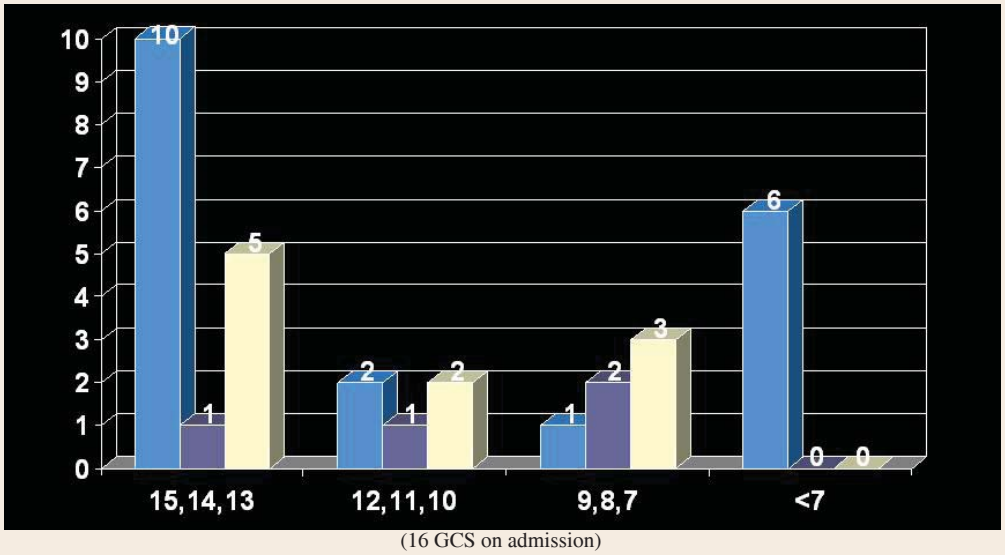
(12 Flap dura exposed)

(13 Dura opened nad clots being removed)

(14 Flap replaced..)



(15 Evacuated clots)

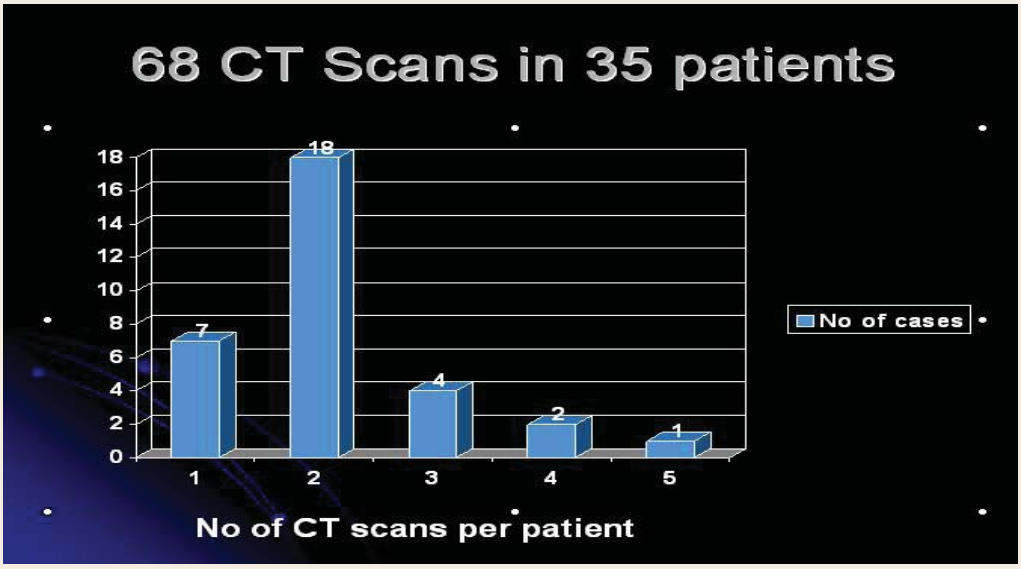


(16 GCS on admission)

GCS on Admission	Desirable Outcome	Undesirable Outcome
3-8	6 (ID= 5, IR=1)	5 (DR= 2, DD= 3)
9-15	21 (ID= 21)	3 (DR= 1, DD= 2)
	Total 27 cases	Total 8 cases

Table 3: GCS on admission as related to Outcome.

All patients had preoperative CT Scan. Distribution of CT scan usage is shown in Fig 17. There were 6 revisits to OR see Table # 4: One case was to replace a migrated VPS and 5/6 (83%) were for re evacuation of ICH. In this group we had only one (17%) undesirable outcome (DD). 5/6 (83%) did have desirable outcome.



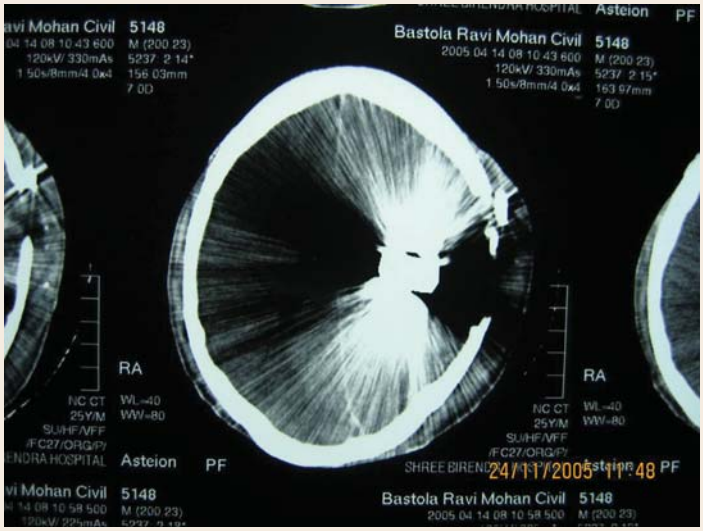
(17 CTScan usage)

Improved and discharged: We had 27 cases with this desirable outcome.

Improved and Referred: We had only one case in this group. MTH#198977(25/ Male). Admitted to MTH on 2005-04-13 with GCS 8/15. He was a blast injury victim with penetrating trauma to head, FB in situ. The patient was offered on the same day debridement + elevation of fracture. The FB was left alone. He was referred to higher center on 2005-04-13 with GCS of 11/15. Fig 18, 19.

Undesirable outcomes were deteriorated and referred (See table 5) and Died see (Table 6)

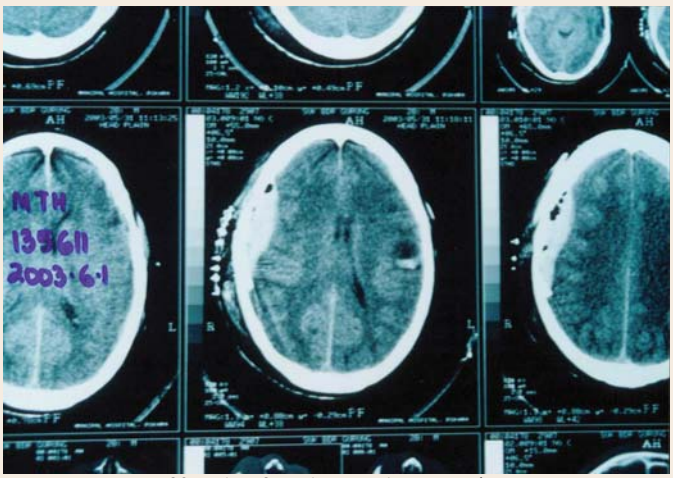
(18 Improved and referred prep CT Scan FB in brain)



(19 Improved and referred CT Scan after pt returned from higher center)

Table # 4: Revisits to Operating Room: Lessons Learnt

Sno	Event	Lesson
1	MTH#111842 (56/male). Admitted 2002-10-08. GCS 6/15. OT same day craniotomy and evacuate. GCS improved to 13/15. Repeat CT scan huge EDH. Re operated 2002-10-10. Enlarged the craniotomy and re evacuate. Final outcome improved and discharged.	Act on the CT scan findings.
2	MTH#136611 (28/M). Admitted 2003-05-29. GCS 7/15. OT same day. Craniotomy and evacuate. Post op GCS 5/31. Repeat CT significant residual hematoma. Re operated 2003-05-31. Repeat CT scan 2003-06-01 complete resolution.	Act on CT scan findings.
3	MTH#202740 (28/male). Admitted 2005-05-27, GCS 13/15. CT Scan left SDH. Burrhole same day. Post op GCS fell to 5/15. Repeat CT scan large EDH, SDH same size. Craniotomy done but pt died.	1.Protocol broken by taking up a GCS 13/15 SDH. 2. Significant iatrogenic injury was created
4	MTH#169574 (45/male). Admitted 2004-04021 GCS 6/15. Craniotomy with evacuation of EDH and SDH. Repeat CT scan complete resolution. VP Shunt done 2004-07-03 for secondary hydrocephalous.	Be prepared to take on delayed complications.
5	MTH#214657 (30/male). Admitted 2005-10-24 GCS 12/15. OT same day. Burrhole and evacuate. Post OP GCS 7/15. Repeat CT no change in EDH. Re do 2005-10-28 craniotomy and complete evacuation.	Act on CT scan findings.
6	MTH#132103 (6/male). VP shunt done for congenital hydrocephalous 2004-06-08. Routine follow-up migrated VP shunt. Re placement VP Shunt 2005-07-24	Be prepared to tackle delayed complications.



(20 Redo # 2 Inadequate clot evacuation)

(21 Redo # 4 Preop)

(22 redo # 4 Satisfactory clot removal)

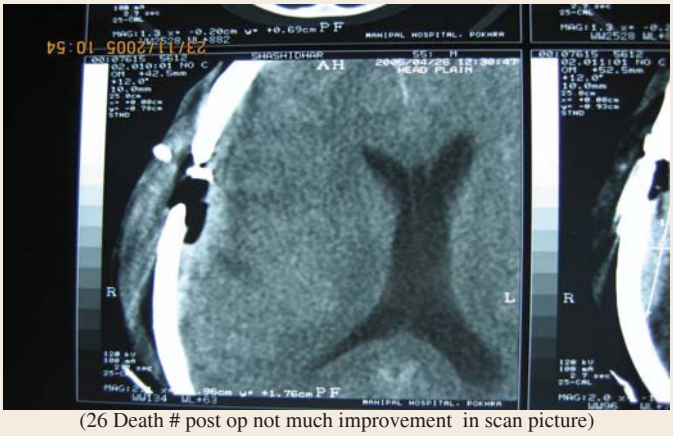
(23 redo # 4 4 months later pt developd post traumatic hydrocephalous)

(24 redo # 4, 3 months after VPS insertion)

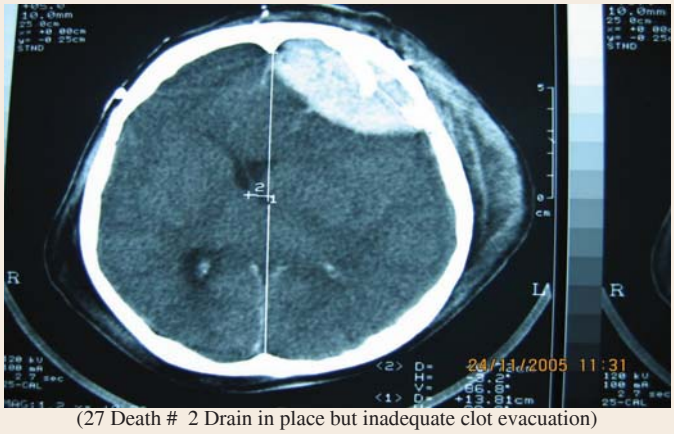
(25 Death # 1)

Table # 5: Deteriorated and Referred: Cases and Lessons

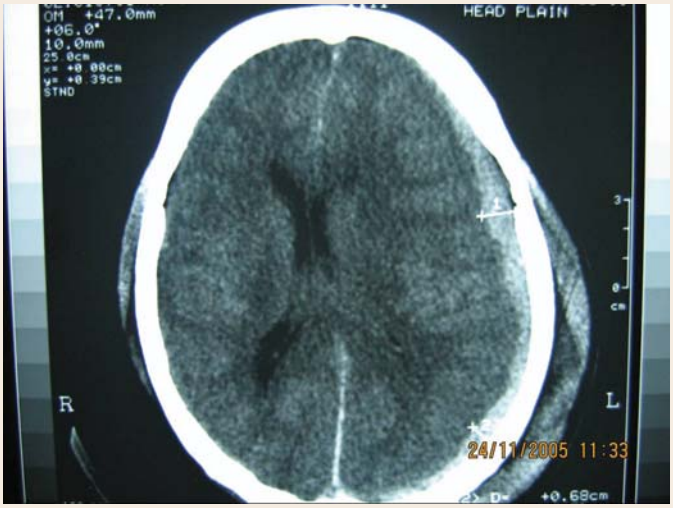
Case no	Event	Mistakes
1	MTH#192000 (6/12 male). This baby was admitted on 2004-12-18. His pre operative diagnosis was of B/L Chronic SDH. Baby was taken for surgery with intent to evacuate the hematoma on 2004-12-22. During surgery no hematoma was found. Only CSF was drained and external drainage applied. There was no improvement in the condition of the patient and he was referred to higher center finally. Review of the scan with radiologist changed the diagnosis to Hydrocephalous.	1. Diagnosis of spontaneous b/l chronic subdural hematoma in a 6 month child with no bleeding diathesis was entertained. 2. Consultation with radiologist was done post operatively.
2	MTH#193446 (26/male). Admitted on 2005-01-09. Admitting GCS was 7/15. CT scan showed massive (L) SDH. Surgery was done on same day. Burrhole evacuation. Clinical GCS fell on POD#8. Repeat CT scan massive edema. Referred on 2005-01-18.	1. Burrhole was done instead of Craniotomy for massive SDH. 2. No tracheostomy was done. 3. Referral after 8 days.
3	MTH#214284 (48/male). Admitted on 2005-10-18. GCS on admission was 6/15. CT scan showed EDH, SDH, SAH, ICH right side. Surgery was done on 2005-10-19 burhole and evacuation. Post op GCS 4/15. Referred on 2005-10-23	1. Protocol broken in selection of case. (This case should not have been operated by any general surgeon) 2. Surgery only tackled the least important pathology. 3. No tracheostomy was done. 4. Inadequate surgery was done for a very complex lesion.



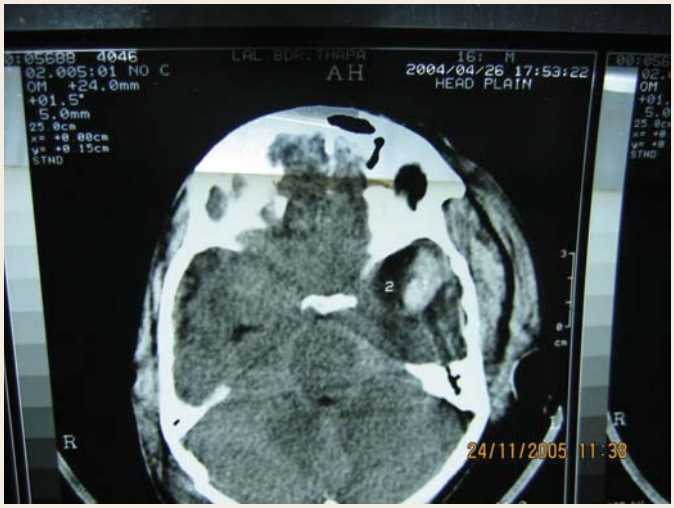
(26 Death # post op not much improvement in scan picture)



(27 Death # 2 Drain in place but inadequate clot evacuation)



(28 Death # 3)



(29 Death # 5 Preop)

(30 Death # 5 CT Sacn 3 days post op)

Table # 6: Mortalities and Lessons learnt.

Case	Event	Mistake
1	MTH#200041 (55/male). Admitted on 2005-04-24. CT scan Left EDH. Admitting GCS 7/15. Burrhole 2005-04-25. Post op GCS fell to 4/15. Repeat CT scan no change in EDH no change in midline shift.	1. Delay of 1 day from admission to OT. 2. Inadequate surgery. 3. Findings of repeat CT scan not acted upon.
2	MTH#200446 (22/male). Admitted 2005-04-30. Admitting GCS 5/15. CT scan Left frontal EDH. Burrhole same day. Repeat CT scan = no change in size of hematoma. Death 2005-05-01.	1. Inadequate evacuation. 2. Findings of repeat CT scan not acted upon.
3	MTH#202740 (28/male). Admitted 2005-05-27, GCS 13/15. CT Scan left SDH. Burrhole same day. Post op GCS fell to 5/15. Repeat CT scan large EDH, SDH same size. Craniotomy done but pt died.	1. Protocol broken by taking up a GCS 13/15 SDH. 2. Significant iatrogenic injury was created.
4	MTH#206635 (32/male). Admitted 2005-07-11 GCS 3/15. CT scan huge left temporoparietal EDH. Surgery same day craniotomy and evacuation. Died next day.	1. Laryngoscope not available in ER. 2. Elevator not working pt needed to be manually transported 3 floors to OR. 3. 45 mins delay from admission to incision.
5	MTH#169980 (16/male). Admitted 2004-04-26. GCS 8/15. CT Scan EDH, SDH, ICH. Craniotomy same day EDH and SDH evacuated. Died 2004-04-28	1. Out of protocol case selected for surgery. 2. Tracheostomy done POD 1 should have been done on admission.

Discussion:

Neurosurgeons are a scarcity all over the world. See Table # 7. General surgeons will be required to provide neurosurgery most of the time in our country.

	USA	Nepal
Neurosurgeons	3400	5
Population in million	300	30
Population base/Neurosurgeon	88235	6million
Head Trauma	1.5 million/year	No data

Table # 7: Comparing neurosurgical services in Nepal and USA

Esposito et al[1] have utilized the American College of Surgeon's Trauma Data base and have reported on 732,000 trauma patients. 29% had a head injury diagnosis. Of these head-injured patients, only 3.6% required a craniotomy. The median time from injury to craniotomy was 195 minutes. Only 6.5% of craniotomies were performed within 1 hour. To achieve this level of utilization nearly every hospital in Nepal will be required to provide for neurosurgery services. General surgeons can provide this surgery with reasonable outcomes. In such situation, a unique patient population will be generated with the complication profile of deteriorated and referred. In a neurosurgical unit the deteriorated patients are managed by the specialist unit itself and this population will not be created. As such outcomes in the hands of general surgeons should not be compared with those of specialist neurosurgeons. Matta Basil et al[2] in 1996 reported on the management implications of the management of severe head trauma defined as GCS < 8, in whole of UK and Ireland. Only 35 (88%) centers provided care for the severely head-injured. Patients were managed in specialized neurosurgical ICUs in 66% of centers and in general ICUs in the remainder of the centers. The ICUs were coordinated by an anesthesiologist in 66% of instances and by a neurosurgeon in 23%. Annual caseload varied between units with the majority of units (49%) receiving between 25 and 50 patients with severe head injury, 23% receiving between 50 and 100 patients with severe head injury, and 29% receiving >100 patients with severe head injury. MTH receives more than 250 head trauma patients annually and approximately 25% are with admitting GCS < 8. Volume based criteria imply that this hospital should provide neurosurgical services.

There was considerable variability in both the nature of monitoring and therapy between centers. Although blood and central venous pressures were invasively monitored in >50% of the patients in 94% and 77% of the centers, respectively, intracranial pressure was only monitored routinely in 57% of the centers. Our study also shows variation in the management methodology between surgeons even though we use protocol based management. Only 68% of the centers had a protocol for the treatment of intracranial hypertension. There are wide variations in the management of the severely head-injured patient everywhere. Some of the therapies employed are not supported by available research findings. Rationalization (using rational management, i.e., based on good evidence) of the intensive care management of severe head injury with the development of widely accepted guidelines may result in an improvement in the quality of care of the head-injured patient. Level of consciousness is a very important determinant of outcome[3-8]. General surgery units are usually able to provide for this service with reasonable outcomes[9]. As shown by Schecter et al three of the nine deaths were directly attributable to a delay in diagnosis of an intracranial hematoma. They conclude that a burr-hole procedure in unconscious head-injury patients in rural hospitals is a safe and effective method of diagnosing and treating extradural and subdural hematomas. General surgery residents should receive training in operative head-injury management, to improve the care of the head-injury victim in rural areas. Lack of equipment and specialists are not an indication to refer but to stabilize. This series shows patients with GCS score 8 or less Desirable outcome (ID/IR) was seen in (55%) and undesirable outcome (45%) cases. If admitting GCS was 9 -15 desirable outcome was seen in (87%) and undesirable outcome was seen in (13%) cases. See Table # 3. It is well known that evaluation and comparison of outcomes among various neurosurgical institutes is very difficult[10]. This is due to

1. Selective hospital admission practices.
2. Differential selection of patients include in follow ups.
3. Varying length of follow-up to determine fatal events.
4. Some combination of all these.

Obviously comparisons between neurosurgeons and non specialists will be even more difficult.

Personal Comments: (Proff. Digvijay)

Initiating the neurosurgery services in MTH was a desperate answer to a desperate situation. It was a measured risk. My unit has a publication in this subject. (General surgeons in the management of head injuries. Journal of Society of Surgeon's of Nepal. Review article. Vol 8, Number 1, Jan 2005. Pages 3-10.) In the beginning, we had thought that that these procedures would carry the same complication rate and results no matter who was doing the surgery. I observed that this was not true. Surprisingly the previous surgical experience of the operator was not significant in changing the outcomes. I found that general surgeons who are able to do the following are more likely to give predictable results.

1. Able to identify normal anatomy in CT scan head. (Lobes, Pons, Internal capsule etc)
2. Able to diagnose subarachnoid hemorrhage in CT scan.
3. Name the ventricles in each section of the CT scan.
4. Able to set up the ventilator.
5. Read ABG and electrolyte report and prescribe targeted fluid electrolyte therapy.

Surgeons not fulfilling these criteria will not give expected results; they need further training especially in interpreting CT sans and intensive care to be able to achieve minimal standards. See Table. Group 1 surgeons fulfilled the above criteria and group 2 did not. Outcomes were totally unacceptable for group 2 and acceptable for group 1.

Group	Transthoracic decompression	VPS	Burrhole	Craniotomy	Tracheostomy	Average Admitting GCS	Desirable Outcome	Undesirable Outcome
1	1	4	7	28	1	11/15	23/25 (92%)	2/25 (8%)
2	0	0	8	0	0	9/15	1/7 (14%)	6/7 (86%)

This is mainly due to faulty case selection (Breaking the protocol), inadequate evacuation (Gp 2 did not do any craniotomy) underuse of Ventilator, tracheostomy and Anesthetist. Gp 2 also showed distinct lack of response to second CT scan which showed presence of pathology. Complications is surgical services are a certainty. The chief highlight of this paper is that if the complications are addressed aggressively the results improve. I must urge all to take a good look at Table # 4. We must never forget that, the improved results in traumatic neurosurgery are not due to improvement in techniques but improvements in critical care.

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Original Article

Direct trocar insertion for creating pneumoperitoneum in laparoscopic cholecystectomy.

Authors: Sushil Dawka[1], Digvijay S Timilsina[2]

1 Associate Professor Manipal College of Medical Sciences Pokhara
2 Principal and CEO Gandaki Medical College, Pokhara, Nepal.

***Correspondence to**: Dr Sushil Dawka, Associate Professor in Surgery, Manipal College of Medical Sciences, Pokhara, Nepal.*
e-mail: sushil.dawka@gmail.com

Abstract:

Introduction: The Veress needle (VN) is commonly used for establishing the pneumoperitoneum required for laparoscopic procedures while open trocar placement using the Hasson cannula (HC) is generally reserved for high risk cases. A less described and practiced technique is direct trocar insertion (DTI). Operators unfamiliar with DTI as an alternative procedure may be under the impression that it is hazardous.

Method: In this study we analyzed this technique for peritoneal access and primary port placement in 100 consecutive cases of laparoscopic cholecystectomy (LC) and compared it with the VN technique performed in 100 cases. Injuries were classed as major or minor depending on whether or not they significantly affected the performance of the procedure and the eventual outcome.

Results: There were no major injuries in the DTI group and one major vascular injury occurred in the VN group. Minor injuries were more frequent in the VN group but this was neither statistically nor clinically significant. Peritoneal access and creation of laparoscopic workspace were attained faster and more efficiently by the DTI technique.

Conclusion: Our results and that of other studies suggest that there is no significant difference in the safety profile of the two techniques. DTI is a fast, safe and reliable alternative to traditional techniques of primary port placement in laparoscopic procedures.

Key words: Direct trocar insertion, Veress needle, pneumoperitoneum

Introduction:

Laparoscopic cholecystectomy is among the commonest surgical procedures performed today. It is the frequency of this procedure that has resulted in the explosive development and ubiquitous application of endoscopic surgical methodology and minimal access techniques over the last two decades. Indeed, the extension of minimal access skills and practices to increasingly wider and more complex aspects of surgery has resulted from experience and knowledge built upon this groundwork. Therefore LC has remained the training ground for endoscopic surgical skills and is still deemed the benchmark against which other applications of minimal access surgery are evaluated.

The establishment of pneumoperitoneum is a prerequisite for most laparoscopic surgery, and the method used is not necessarily dependent on the procedure for which it is intended. The techniques for gaining safe access to the abdomen by primary port placement, though universally applicable, are usually learnt by surgeons when they train for LC, or in the case of gynecologists for diagnostic procedures. Surgeons are creatures of habit and stick to the techniques they are familiar with, adopting special maneuvers only when presented with the unusual. As such, most surgeons give little thought to their preferred method of establishing access, and concentrate more on the procedure itself. For example, surgeons performing a LC are obsessive

about avoiding bile duct injury and it may come as a surprise that non-biliary injuries are as common, of which access instrumentation injuries the most frequent.[1]

The textbook methods described are the Veress needle technique (the classic 'closed' technique) and the open Hasson cannula method (the classic 'open' technique). Newer proprietary shielded, visualising trocars, threaded or radially expanding devices are also described. Less often is the technique of direct trocar insertion mentioned. Indeed, some surgeons apocryphally consider it a hazardous technique.

This retrospective analysis and review is intended to evaluate DTI in comparison to VN as a method of placing the primary trocar in low risk cases.

Method:

We retrospectively evaluated 100 consecutive patients in whom DTI was performed as against 100 patients in whom VN entry was performed. All of the former were uncomplicated cases planned for laparoscopic cholecystectomy whereas the latter group included 8 gynecological and diagnostic procedures. In patients who had previous laparotomies, Palmer's point entry was deemed indicated and they were excluded from the study.

The technique we adopted for DTI is as follows: an initial umbilical skin incision is followed by a small nick in the linea alba, avoiding the peritoneum. Elevation of the abdominal wall with the non dominant hand and direct entry of a the port over a blunt reusable trocar. The other hand is used for balanced countertraction so as to prevent inadvertent uncontrolled entry and possible overshoot. The angulation towards the pelvis is adjusted according to the surgeon's assessment of the patient's bodily habitus. Factors such as adequate skin incision, sharp instruments, abdominal wall relaxation, nasogastric decompression, placing of a finger as a guard along the trocar, optimal table height etc are ensured as necessary. The CO_2 stopcock is left open so as to relieve the negative intra-abdominal pressure caused by the abdominal wall elevation and allow apposed viscera to fall back. As soon as peritoneal penetration is perceived, the trocar is withdrawn and the telescope introduced part way into the cannula, placement confirmed and only then is CO_2 insufflation commenced. We feel that this would detect inadvertent malposition immediately. The flow rates and pressures attained are monitored and interpreted as usual. Since we prefer to extract the gall bladder through the umbilical port, it is convenient to visually inspect its peritoneal aspect from the epigastric port at the end of the procedure.

The case files were studied and major and minor injuries and complications related to access technique were noted. Injuries were classed as major or minor depending on whether they significantly affected the performance of the procedure or the eventual outcome. Major injuries would include bowel injury, vascular injury, solid organ injury and mesenteric injury or gas embolism. Minor injuries were listed as failed pneumoperitoneum necessitating some other method, preperitoneal emphysema, subcutaneous emphysema, port-site bleed, and periumbilical bruising. The operating time or the time required to establish pneumoperitoneum had not been routinely recorded in some of the case notes and it was felt that any time difference caused by the access method would be irrelevant in relation to the time required for the cholecystectomy itself.

Results:

In the DTI group, the average age was 37.6 years (18y-76y). The sex ratio was M:F::12:88 .In the VN group the average age was 42 years (22y-69y) and sex ratio was M:F::15:85.

In the DTI group there were no major access related complications. Minor complications included 3 cases of periumbilical bruising, and 1 port site bleed that was controlled by cantilevering the cannula to apply pressure.

In the VN group there was 1 mortality resulting from major vascular injury, 1 case of periumbilical bruising, 3 cases of preperitoneal emphysema and 1 case of subcutaneous emphysema, and 2 cases of port-site bleed one of which required suture control.

None of the complications were considered significant hindrances to surgery or had any sequelae of clinical importance. While DTI required less time to establish pneumoperitoneum, this may not be as relevant in the context of LC as for shorter diagnostic procedures.

	Veress Needle (100)	**Direct Trocar Insertion** (100)
Periumbilical bruise	1	3
Preperitoneal emphysema	3	0
Subcutaneous emphysema	1	0
Port-site bleed	2	1
Failed entry	0	0
Gas embolism	0	0
Major vessel injury	1	0
Bowel injury	0	0
Death	1	0

Table 1: Access related injuries and complications.

	Veress Needle (18)	**Direct Trocar Insertion** (58)
Time	3.3 min (2m 30s-6m 30s)	1 min (45s – 3m 15 s)

Table 2: Time required in establishing pneumoperitoneum.

Discussion:

Most discussions on the safety of laparoscopic surgery, especially of LC, focus primarily on procedure-specific complications such as biliary injury and secondarily on non-biliary i.e. vascular or enteric injuries occasioned by the main procedure. Access related injuries are usually evaluated in separate studies and major vessel or bowel injuries caused by entry are fortunately as infrequent as 0.1% -0.4%. (reference)

A perusal of the literature gives one the impression that gynecologists are more circumspect about access related complications. [2-12] This may be because they would traditionally have to call in a surgeon for a vascular or enteric injury, whereas a surgeon would at most have to convert to an open procedure. It is anecdotal but very possibly true that these complications are under-reported, especially as the minor complications related to entry have minimal impact on overall outcome.

In 1932, Janos Veres, a Hungarian chest physician, devised his eponymous needle for establishing artificial pneumothorax. Today, VN is the commonest peritoneal access method among both surgeons and gynecologists. In a survey of laparoscopy entry techniques practiced by gynecologists, it was seen that 90% used a Veress needle technique, 8% used a direct entry technique without a pneumoperitoneum, and 1% used Hasson's open method. More interestingly, over half said that they would not alter their preferred technique even for obese patients or those who had previous abdominal surgery. Only one third admitted that their techniques had changed in the past 5 years.[2]

Some operators routinely use open Hasson cannula placement, believing that the added outlay in time, effort and instrumentation is more than offset by the increased safety. VN related bowel injury is reported as 0.3-0.8 /1000 and for open entry it is 0.6-2.8 /1000.[2] These studies include both low and high risk cases and obviously, this is biased against the open technique which is usually reserved for the latter subset. When only prospective and randomized studies are collated, DTI has a statistically significantly lower incidence of bowel injury as compared to the other techniques (1.9/1000 for VN, 1.5/1000 for open and 0.3 / 1000 for DTI)

In an open comparative randomized prospective study on the feasibility and safety of DTI versus the VN technique in 598 non-obese patients, minor complications were nil in the DTI group and 5.9% in the VN group. [13] These consisted of 11 cases (3.4%) of subcutaneous emphysema and eight cases (2.5%) of extraperitoneal insufflation. Major complications were nil in the DTI group and 1.3% among VN patients. These included two hepatic lesions managed laparoscopically, one misdiagnosed ileal perforation requiring reintervention, and one mesenteric laceration treated conservatively. Agresta et al. [13] concluded that in thin patients with no more than one previous abdominal operation, DTI is a safe alternative to the VN technique and is associated with fewer minor complications whereas, there is no difference between the two techniques as regards major complications.

In a large prospective multicentre study of 1838 consecutive DTI procedures by two gynecologists, there were no failed entries and only one major injury, a transverse colon entry that was detected immediately and endosutured, with no other consequence. [3]

In a meta-analysis of 18,577 cases of direct trocar entry, no major vascular injury was reported as compared with 0.04% for Veress needle entry. 9 cases of bowel injury were reported and, where details were available, 5 out of 7 were in abdomens that had vertical midline incisions scars. [3] Most proponents of DTI consider previous surgery a contraindication to direct umbilical entry preferring entry at Palmer's point or an open placement technique. Indeed, Dingfelder, when first outlining the technique of DTI in 1978, specified avoidance of previous incision sites. [4]

Most studies evaluating DTI lack standardization in terms of procedures, indications, patient profile and operator related factors. This is inevitable in the evaluation of any subsidiary technique or procedure. Prospective randomized trials would require huge population numbers to show differences in safety profiles of statistical significance, given the low incidence of major injury. [3]

The quantifiable benefit of DTI is that it takes less time to establish pneumoperitoneum. Prieto et al. reported a laparoscope insertion time that was significantly different between the two techniques (DTI 1.5±0.5 versus VN 3.0±0.4 minutes $p < 0.001$). This results both because the procedure itself is simpler and because of the enhanced flow rate through the wider cannula as against the Veress needle. Byron et al. [5] reported mean insertion times of 2.2 minutes and 5.9 minutes for the DTI and VN techniques respectively.

Another perceived advantage of DTI is that correct port placement can be checked immediately. Kaloo et al. have pointed out that the delay to diagnosis is the real cause of significant, morbidity and mortality resulting from bowel and vascular injury. [3]

In addition, DTI has a near total entry success rate, thus avoiding the added risks of secondarily performing an additional entry procedure. [3]

The other advantages we perceive are moot. We feel that pre-insufflation makes it difficult to grasp and elevate the abdominal wall for counter pressure during primary trocar entry. The pressure of 12-15 mmHg is high enough to distort the abdominal wall elasticity and dynamics, but much less than the force required to insert the trocar (up to 3Kg). As such, while it does increase the distance between the trocar tip and underlying structures, it necessitates that much more force to be overcome. [15] Then again, trocar entry is ideally a sustained rotatory advancement, whereas needle insertion is necessarily a sharp vertical thrust. It is revealing to see how easy it is to puncture an inflated rubber glove with a Veress needle.

The question may be rephrased as: should pneumoperitoneum be created before or after inserting the first trocar? Some authors believe in raising the

intraperitoneal pressure up to 25 mmHg prior to primary trocar placement. Despite the theoretical enhanced risk of gas embolism in the event of vessel injury, they believe that this distances underlying structures even further from the advancing trocar tip by as much as 5 cm.[8]

There is really only one blind maneuver in DTI as against three for the Veress needle: two blind entries with one intervening blind insufflation. [3,15] The VN technique is, after all, a direct entry technique performed after insufflation. One has to consider the balance of risk: is the VN entry safer than the direct trocar entry, both blind, and if so, does pre-insufflation decrease the risk of blind trocar entry enough to justify two blind entries?

It is understood, if unstated, that what one really fears is the adherent loop of bowel in the absence of any external evidence such as an operative scar. Fortunately, in the non-operated abdomen, the incidence of umbilical adhesions is as low as 0.03%, rising to as high as 68% following previous laparotomy.[6]

An adherent immovable gut loop is equally likely to be penetrated by both needle and trocar if it directly underlies the entry site. Pre-insufflation cannot obviate injury to an adherent bowel loop. This risk may be minimized but is not eliminated even by open HC placement.

Is Veress needle puncture of bowel less likely and/or less morbid than trocar gut entry?
With DTI the mishap is immediately obvious. With VN however the puncture may not be detected at all during the operation causing late morbidity. Violent side to side waggling movement of the needle to confirm position can lacerate gut to an extent mandating conversion. The likelihood of puncture and laceration are more a function of the applied force rather than the dimensions of the device. On the other hand, needle entry to gut may need no treatment if small, but trocar entry would necessitate repair.

The VN despite its simplicity is not infallible. Simulation studies have shown that the tactile "pops" that indicate various strata of penetration are often illusional.[9] Surgeons' perception of peritoneal entry was not always borne out by imaging. The various tests and checks that assess tip placement of the needle are unreliable and sometimes misleading. Less instrumentation ultimately translates into decreased cost, and all else being equal, less unreliability. There is always the bogey of instrument failure: we have narrowly avoided the disaster of a VN tip breaking off and getting lost in the parieties or in the abdomen

Direct trocar insertion relies more on skill and knowledge of abdominal wall anatomy and dynamics rather than secondary tests that are not always reliable. [10,15]
Vilos et al. considered the various Veress needle safety tests as unyielding of useful information and unnecessary.[7] They observed that side to side waggling of the Veress needle can convert a 1.6mm puncture into a 1 cm laceration. They considered DTI as a safe and rapid alternative to VN as it is associated with less insufflation-related complications such as gas embolism.

Some authors have suggested modifications in the standard technique to minimize the perceived risk of inadvertent bowel entry. Hasaniya et al. paradoxically recommend changing over to a blunt trocar when a loss of resistance is felt while performing direct entry.[11] Volpi et al. suggest strong elevation of the umbilical scar with towel clips and using a scalpel blade tip for peritoneal entry.[12] Gunenc et al. recommend elevation of the rectus sheath with towel clips instead of only the skin to effectively distance the trocar point from subjacent viscera.[16] Most of these studies describe safe extension of DTI to what are traditionally considered high risk cases ie. post-laparotomy patients, excessively lax or taut abdominal walls, obese patients etc. However most of these single centre studies are limited by small numbers and operator variation, and possibly a 'personal preference' bias.

Conclusion:

In conclusion, this is a retrospective study and therefore patient numbers are limited. Prospective randomization requires huge numbers and indefinable variables also affect this. Inevitably in a study like this, the results are skewed both by case selection bias and operator preferences. It is difficult to design and carry out a RCT to evaluate a subsidiary procedure. In addition, given the rarity of significant bowel and vascular injury and the perceived under-reporting thereof, meaningful statistical analysis of the data is difficult.

Individual preference and habituation play an unquantifiable but undeniable role in such studies. This study is limited to the reporting and stratification of hazards of routine DTI in low risk patients encountered by surgeons habituated to and preferring of the procedure.

We conclude that DTI is a rapid, reliable and safe method of primary port placement, but the balance of evidence suggests that each operator stay with the technique he is familiar with and habituated to as the safety of these procedures depends more on individual skill and caution, as well as a clear appreciation of the anatomy and physics of the abdominal wall, than on the technique itself.

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Original Article

Family burden in substance dependence syndrome

Lamichhane N[1],Shyangwa P M[2], Shakya R[3]

1. MD, Psychiatrist, Department of Psychiatry, Western Regional Hospital, Pokhara, Nepal
2. MD, Additional Professor, Department of Psychiatry, BPKIHS, Dharan, Nepal.
3. MD, Assistant Professor, Department of Psychiatry, BPKIHS, Dharan, Nepal.

Correspondence to:
Dr. Nirmal Lamichhane
Department of Psychiatry, Western Regional Hospital, Pokhara, Nepal
Phone: 061-520275, 9846025771
E-mail: drnrmlam@hotmail.com
drnrmlam@yahoo.com

ABSTRACT

Hypothesis: Substance abuse possesses problems not only on the individual users but also on the family and the community. Within the family, it is often the women who are most affected and bear a significant brunt of the burden. Such burden becomes obvious in a developing country like Nepal, where women are already disadvantaged.

Methodology: This is cross-sectional, descriptive hospital based study. After obtaining informed consent and satisfying inclusion-exclusion criteria, 60 subjects and their primary care takers (PCTs) were included. ICD-10 criteria were used for the diagnosis. Family burden interview schedule was used to assess the family burden. Data were analyzed by using appropriate tools like chi-square, Fisher exact tests for association between discrete variables and T-test to test the significant difference between the continuous variables. The subjects made two groups 30 with alcohol dependence (ADS) and 30 with injecting drug use (IDU).

Results: The overall burden was higher on IDU than ADS (66.7% vs.46.7%) while the spouses were generally more tolerant than the other caregivers as PCTs (46.7%vs 84.5%) in terms of total burden perceived.

Key words: Substance abuse, Nepal, family, women, burden, alcohol dependence syndrome, injecting drug use

INTRODUCTION

Substance abuse possesses problems not only on the individual users but also on the family and the community. Substance dependence syndrome are well served in the literature by a wide variety of clinical, epidemiological and laboratory studies but the examination of its relationship to behavioural and environmental factors has gained importance only lately.[7] The costs that families incur in terms of economic hardships, social isolation and psychological strain, are referred to as **family burden**.[17] The burden on families on account of substance abuse by a family member has begun to come into focus since the 1990s.[16]

Hoenig and Hamilton in1966 attempted to distinguish between objective and subjective burden. The former includes the effects of the illness on finances and routine of the family, while the latter is defined as the extent to which family members are affected by objective burden.[8]

Indeed substance abuse poses various kinds of problems impacting not just on the individual user, but also on the family and community in general. Within the family, it is often the woman, in the role of wife or mother who is most affected by the individual's substance use, and has to bear a significant part of the family burden. Such impact becomes even more obvious in a developing country like Nepal, where women are already disadvantaged. This aspect of the burden of substance use has received scant attention. Like many other societies, Nepali society is a society in transition. Changing roles, increased stress and alterations in lifestyle bring with them newer problems.[12]

Dharan being a prone area in Nepal for substance abuse it is likely to give a better chance in understanding the intended impacts in Nepali environment where families are more cohesive and supportive in comparison to those in the west. Since families play a vital role in subject's support and treatment, this study may help in better understanding the problem and devising better prevention, coping and treatment strategies. Moreover, Dharan being an infamous area in Nepal for substance abuse it will give a better insight into the deleterious impacts in our environment where families are cohesive and supportive as compared to those in the West.

AIMS

1. This study has been carried out to explore some important but not yet explored aspects of substance dependence syndrome (SDS) i.e. the family burden perceived by the primary care takers (PCTs) of these subjects.
2. The relevant clinico-socio-demographic profiles of the subjects as well as those of the PCTs were also studied.

Methodology:

SETTINGS AND DESIGN

It is a descriptive, cross-sectional, hospital-based study in a 60 consecutive subjects fulfilling the diagnosis of "substance dependence syndrome" criteria according to ICD-10 DRC and similar number of primary caretakers of the subjects was included.

The subjects were included from those attending the Psychiatry OPD and admitted in the de-addiction ward or subjects referred from any other departments of B.P. Koirala Institute of Health Sciences (BPKIHS), Dharan,a tertiary care center within 12 months period of data collection (May 2005 to April 2006).

The subjects were included by convenient sampling only after a consultant psychiatrist from the department of psychiatry independently confirmed the clinical diagnosis. The subjects were interviewed in a one to one situation. In circumstances where the subjects were not ready for the immediate interview then it was carried out as soon as the heightened medical crisis were over. Written informed consent was taken from the subject and the instruments were administered. The data were collected by applying the instruments putting up with norms set by the original writer of the instruments. The data collection was sole responsibility of the principle author of this study.

INSTRUMENTS

1. **A clinico-socio-demographic performa.** This is a self-designed, "semi-structured performa", designed and adopted by the experts at department of psychiatry, BPKIHS, Dharan. It was used for the collection of the relevant socio-demographic and clinical information required for the purpose of this study about the subjects and the primary care taker (PCT).

2. **Family burden interview schedule (FBIS, Pai and Kapur 1981)** It is a semi structured interview schedule comprising 24 items grouped under six areas. Rating of burden is done on a three-point scale for each item and a standard question to assess the 'subjective' burden is also included in the schedule[16]. The source instrument was translated to Nepali Language by two translators using standard methodology [6].

Statistical analysis

Frequencies and percentage were used to describe discrete variables. For the continuous data, mean values were calculated to measure the central tendencies whereas; range and standard deviation were computed to measure dispersion. Chi-square, corrected and uncorrected chi-square and Fisher exact tests were utilized to test the significant association between discrete variables. T-test was used to test the significant difference between the continuous variables. The significance level was set at 5%.

Results

Sixty newly diagnosed cases and their primary caretaker (PCT) were studied. Majority of the subjects were inpatients, undergoing detoxification. The subjects were divided in two groups: 30 with alcohol dependence (ADS) and 30 with injecting drug use (IDU) and hence the interpretations of the results were done to see the overall as well as the comparative affect between the groups.

Table 1 demonstrate that while the majority IDUs were less than thirty years old, majority of ADS subjects were more than thirty years old. It also reveals that the majority of the subjects were males from urban and semi urban domicile. Unemployment was more among IDUs than in ADS. Half of the IDUs were single while majority of the ADS were married.

Table 2 illustrate that females outnumber male as the primary caretaker of the subject with SDS and more than half of them were the spouses (n=31, 51.7%). It reveals that almost half of the PCTs were housewives (n=28, 46.7%). It also shows that majority of the PCTs in both the subjects were literate (n=40, 66.7%) with only 33.3%, n=20 being illiterate.

Table 3: Deduce the following findings:

1. The PCTs perceived at least moderate burden in all the problem areas.
2. Compared amongst the group the PCTs with IDUs perceived higher financial burden, effect on the family routine, effect on family leisure and in the overall objective burden while the PCTs with ADS perceived higher burden on family interaction, physical and mental health of others. The overall subjective burden was similar in both groups. However, the difference were not statistically significant.

Table 4 reveals that burden on the spouse were significantly less than on other PCTs in all the problem areas accept the effect on physical health of others.

Table 1: Profile of the subjects (N=60)

Age intervals (years) Frequency (n) Percent (%)		**Subjects**		
		ADS(n = 30)	**IDU (n=30)**	**Total (n=60)**
≤30	n (%)	5 (16.7)	24 (80.0)	29 (48.3)
≥31	n (%)	25 (83.3)	6 (20.0)	31 (51.7)
Sex distribution				
Male	n (%)	24 (80.0)	27 (90.0)	51 (85.0)
Female	n (%)	6 (20.0)	3 (10.0)	9 (15.0)
Distribution according to Domicile				
Urban	n (%)	18 (60.0)	28 (93.3)	46 (76.7)
Semi-urban	n (%)	9 (30.0)	2 (6.6)	11 (18.3)
Rural	n (%)	3 (10.0)	0 (0)	3 (5.0)
Occupation				
Unemployed	n (%)	6 (20.0)	20 (66.7)	26 (43.3)
Marital Status				
Single	n (%)	2 (6.6)	15 (50.0)	17 (28.3)
Married	n (%)	28 (93.7)	15(50.0)	36 (60.0)
Education Status				
Illiterate	n (%)	2 (6.7)	0 (0)	2 (6.7)
Literate	n (%)	28(93.3)	30(100.0)	58(93.3)

Table 2: Profile of the primary care takers (PCTs)

Sex distribution Frequency(n) Percent (%)		Subjects		Total (n=60)
		ADS(n=30)	IDU(n=30)	
Male	n (%)	6 (20.0)	14 (46.70	20 (33.3)
Female	n (%)	24 (80.0)	16 (53.3)	40 (66.7)
Relation of the PCTs to the subjects				
Mother	n (%)	7 (23.3)	4 (13.3)	11 (18.30
Spouse	n (%)	18 (60.00	13 (43.3)	31 (51.70
Occupation of PCTs				
Housewife	n (%)	15 (50.0)	13 (43.3)	28 (46.70)
Education status of the PCTS				
Illiterate	n (%)	8 (26.7)	12 (40.0)	20 (33.3)
Literate	n (%)	22 (73.3)	18(60.0)	40(66.7)

Table 3: Family Burden score sheet by using FBIS score.

Subjects / PCTs	Score	Financial burden [b]	Effect on family routine [c]	Effect on family leisure [d]	Effect on family interaction [e]	Effect on physical health of others [f]	Effect on mental health of others [g]	Family burden (objective) [h]	Family burden (subjective) [i]
ADS (n=30)	**Mean [a]**	8.10	5.63	4.47	4.83	0.47	1.10	24.60	1.73
	SD	2.50	2.99	2.33	3.17	0.73	0.88	10.69	0.45
	Range	3-12	0-10	0-8	1-10	0-3	0-4	8-42	1-2
IDU (n=30)	**Mean [a]**	8.80	6.30	4.63	4.80	0.30	1.03	25.87	1.73
	SD	3.0	2.95	2.09	2.83	0.47	0.96	9.89	0.45
	Range	3-12	0-10	0-6	0-10	0-1	0-4	7-42	1-2
Total (n=60)	**Mean [a]**	8.45	5.97	4.55	4.82	0.38	1.07	25.23	1.73
	SD	2.76	2.96	2.20	2.98	0.61	0.92	10.23	0.45
	Range	3-12	0-10	0-8	0-10	0-3	0-4	7-42	1-2
P-value		0.33	0.38	0.72	0.29	0.29	0.29	0.63	1.00

a. Mean represents the mean value of the extent of burden perceived by the PCTs.
b. Score range (0-6-12) where 0=no burden, up to 6=moderate burden and >6= severe burden.
c. Score range (0-5-10) where 0=no burden, up to 5=moderate and >5=severe burden.
d. Score range (0-4-8) where 0=no burden, up to 4=moderate burden and >4= severe burden.
e. Same as c.
f. Score range (0-2-4) where 0=no burden, up to 2=moderate burden and >2=severe burden.
g. Same as f.
h. Score range (0-24-48) where 0=no burden, up to 24=moderate burden and >24=severe burden. This score is the summation of b, c, d, e, f, and g.
i. Same as f.

Table 4: Family burden (objective and subjective) perceived when PCTs were the spouses as compared to non-spouses.

Subjects / PCTs	Score	Financial burden	Effect on family routine	Effect on family leisure	Effect on family interaction	Effect on physical health of others	Effect on mental health of others	Family burden (objective)	Family burden (subjective)
Spouse (n=31)	**Mean**	7.23	4.65	3.84	3.84	0.26	0.84	20.65	1.58
	SD	2.87	2.63	1.93	2.78	0.45	0.78	9.61	0.50
	Range	3-12	0-10	0-8	1-10	0-1	0-3	7-39	1-2
Non-spouse[a] (n=29)	**Mean**	9.76	7.38	5.31	5.86	0.52	1. 31	30.14	1.90
	SD	1.94	2.66	2.24	2.88	0.74	1.00	8.56	0.31
	Range	3-12	0-10	0-8	0-10	0-3	0-4	11-42	1-2
P-value		**0.00**	**0.00**	**0.008**	**0.008**	0.10	**0.046**	**0.000**	**0.005**

Note: a. non-spouse includes father, mother, son and other first degree relatives

DISCUSSION AND CONCLUSIONS

Our observations of the age at presentation of the SDS were in parallel to the majority of the studies conducted in India[16, 21] and Nepal.[1, 2,3,11,17,18,20] The differences in the age at presentation can be explained in the light that the IDU which is a socially, religiously and culturally unaccepted phenomenon unlike drinking is expected to be detected by the family members and hence present early in the treatment facilities. Moreover, IDU is likely to present to the treatment facilities earlier due to complications vis-à-vis ADS.

In our study subjects, the majority were males. Our findings corroborates with other studies and reports in Nepal.[3,11, 14,16,19] Also in National co morbidity survey (NCS) studies in the US population it was found that except for tobacco, men are far more likely than women to use drugs and alcohol and are correspondingly more likely to develop dependence. [9, 10]

Our findings contrasted the notion which consider a single person to be socio-cultural risk factors for substance dependence[10, 23], as the overall representations of the married subjects were more. Many other studies in Nepal also found more subjects to be married.[3,18,21]This may be owing to the fact that due to lack of understanding of the problem, society construe that marriage can solve the problems. Another reason for such findings in this study may be because of early marriages and cohesive marital bond in Nepalese society.

The higher rates of unemployment in IDU (66.6%) than those in the ADS (20%) points to the fact that many youngsters here have their father employed in the British army. There is no job opportunity for them here and easily get into the unemployed peer groups. The fathers mostly live abroad, even after pension they take job outside; the children are left with their mothers only.[5]

The finding of urban/semi-urban dominance of SDS is consistent with other studies. [5, 14, 20]

In contrast to the western studies[9] where dependence is more common in broken homes none of our subjects were from broken / disrupted families. But this finding was consistent in other studies conducted in Nepal.[3,5,18,21] This may be obligated to the fact that families in Nepal are more cohesive.

Unlike in the western studies which state in general that, IDU is associated with pre-existing socio-economic deprivation and most IDUs live in poverty belonging to low-income households[7] more IDUs in our study belonged to higher income group. With these finding we may say that early enquiry by the family members of the indiscretion on the part of the member of their family and early intervention may lessen the burden.

In this study, the majority of the PCTs were married and more than half of them were the spouses. It uncovers that almost half of the PCTs were housewives. It is said that the relationship of the primary caregiver to the patient may also mediate the experience of burden and the concept of family burden according to Jenkins & Schumacher, 1999; St.Onge & Lavoie, 1997 is often a 'gendered' notion, with the largest part of primary caregiving being provided by female relatives.[17] Moreover, women were the most important treatment motivators of subjects.

In our study the overall subjective burden perceived by the PCTs of the subjects was 1.73±0.45. The overall subjective burden perceived was equal in both the PCTs of the subjects with ADS and IDU. Among all PCTs, 73.3% had perceived severe burden due their family member's (subjects) substance dependence.

When compared to the overall objective burden in this study, overall subjective burden was higher in both the groups of subject. In contrast to 46.7% of PCTs of the ADS, 66.7% of PCTs of the IDU reported severe burden. This difference may be due to the fact that alcohol use is a relatively accepted affair while IDUs is unambiguously perceived as devastating.

Burden on all the problem areas were less on the spouse as compared to others. These findings in our study itself signify that spouse may be more forbearing to the burden than the other family members. Even when compared to the study in India where it was 56%, the spouse in our study perceived lesser burden.[20]

Study shows reason for some optimism to expand treatment of substance dependence syndrome as the families in general were found to be integrated and the spouse in particular were found to be caring. More treatment facilities and rehabilitation programmes should be set up in the country.

LIMITATIONS OF THE STUDY:

1. The study is limited by the small sample size and its cross sectional, hospital-based design and convenient sampling technique. Hence generalization is limited.

2. The primary caretakers were screened for the presence of a psychiatric disorder using a clinical interview and a formal assessment was not carried out. The psychological distress experienced by primary caretakers may have influenced their ratings of burden.

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Dr. Nirmal Lamichhane

Case Report

Multiple wasp stings induced acute renal failure and myocarditis

Dr. Badri Paudel[1], Dr. Klara Paudel[1]
[1] Department of Medicine, Manipal Teaching Hospital, Pokhara, Nepal

Correspondence to:
Dr. Badri Paudel,
Assistant Professor, Dept. of Medicine, Manipal Teaching Hospital, Pokhara, Nepal. Email: badribmu@gmail.com

Abstract:
Hymenopterid stings and subsequent allergic reactions including fatal anaphylasis are a common indication for emergency department visits worldwide. Less commonly, multiple wasp stings can result in multi-system involvement ranging from intravascular hemolysis, rhabdomyolysis, acute renal failure, cardiac involvement, hepatic dysfunction and occasionally thrombocytopenia and coagulopathy. Here we report two cases of multiple wasp stings induced ARF and myocarditis.

Keywords: Wasp bites, Acute renal failure, Myocarditis

Introduction:
The medically important groups of Hymenoptera are the Apoidea (bees), Vespoidea (wasps, hornets, and yellow jackets), and Formicidae (ants). Hymenopterid stings and subsequent allergic reactions including fatal anaphylasis are a common indication for emergency department visits worldwide. The incidence of anaphylaxis caused by insect stings has been estimated from 0.3 to 3% in the general population.[1] Allergic manifestations to wasp stings are well recognized, but more serious complications like intravascular hemolysis, rhabdomyolysis, thrombocytopenia, acute renal failure (ARF), liver impairment and myocardial infarction and myocarditis are less common.[2] Acute renal failure would occur due to toxic-ischemic-type mechanism as hypovolemia, myoglobinuria, hemoglobinuria, renal ischemia, or direct venom toxicity while patient may develop hypersensitive myocarditis, myocardial infarction and fetal arrhythmias.[3] Here we report two cases of multiple wasp stings induced ARF and myocarditis.

Case Report
Case 1
A 27-year old man from Sangja who was the known case of seizure disorder with mental retardation; was on phenobarbitone 60 mg BD and carbamazepine SR 200mg BD was admitted on 18th Aug 2006. He presented to ER with the histry of multiple wasp envenomation (80 bites) 4 days previous and developed anuria for 3 days. He had been stung with a swarm of wasp (vespa maginfica) at head face, neck and upper and lower extremities while he was disturbing the wasp hives. He developed sever pain at the site of bites and swelling of the body. He had 3 episode of seizure (GTCS) each lasting around 30 seconds. There was no history of headache or vomiting. He took first aid at local hospital and was referred since he started developing anuria. There was no history of hematemesis, melena, hematuria or loss of consciousness.

On examination, the patient was conscious and well oriented to time place and person. BP: 150/100 mmHg. Pulse rate 102/min. Patient was not dyspnoic. Bilateral pedal edema was present. He had multiple stings (around 80 bites) and stung areas were edematous and erythematous. There was no pallor, or dehydration. Cardiovascular and respiratory system revealed normal findings. Tenderness in peri-umblical areas was present.

The laboratory results are shown in Table 1. Serum CPK: 3235 U/L, Creatinine: 9.7 mg/dl, urea: 159 mg/

dl. Peripheral blood smear showed reticulocytosis and polychromatic red blood cells. Urinalysis showed protein ++++, RBC plenty, no cast. PT and aPTT was normal. Liver function test revealed slightly increase of liver enzymes, otherwise normal. CXR and ultrasound of abdomen and pelvis was normal.

Clinical manifestation and investigations revealed he had acute renal failure with intravascular hemolysis, rhabdomyolysis; but no coagulopathy or liver injury was present. The Patient was treated with antihistamines, IV fluids and antibiotics. He required 7 times hemodialysis support during the course of treatment.

During the course of treatment, he had showed deterioration with the features of pulmonary edema but there was no sign of any fluid overload. ECG should transient second degree AV Block (Mobitz type 1), and later persistent sinus tachycardia and convex ST elevation in V_1-V_3. Cardiac Enzymes were normal. Echocardiography showed LVEF: 52%, with mild MR, Mild LV global hypokinesia with normal size of LV. So the suspicious of hypersensitive myocarditis was made and was treated with high dose of steroid therapy and treatment was combined with Carvedilol, Enalapril, Furosemide etc. Subsequently, pulmonary edema, urine output and renal functions had improved. He was discharged on 3rd September 2006; total hospital stay was 18 days.

Case 2

A 26-year old man from Parbat was admitted on 23rd Aug 2006, He presented to ER with the chief complaints of multiple was bites (60 bites) all over the body 1.5 days (36 hours) prior to admission. He had severe pain at the site of bites and was treated in the local hospital with antihistamines and antibiotics and IV fluids. He started to develop red colored urine and was referred to our hospital. There was no history of hematemesis, melena, loss of consciousness, diarrhea, nausea and vomiting.

On examination the patient was conscious, oriented but was dyspnoic, BP 160/120mmHg. Pulse rate 60/min. Icterus and bilateral pedal edema was present. Chest examination revealed bilateral crepitations. There was ascitis per abdomen examination.

The laboratory reports are shown in Table 1. Serum CPK: 49900 U/L, CKMB: 590, Creatinine: 3.3 mg/dl, urea: 88 mg/dl. Peripheral blood smear showed reticulocytosis and polychromatic red blood cells. Urinalysis showed Protein: ++++, WBC: 4-6/high power fields (HPF); RBC: 2-3/HPF. PT and aPTT were grossly prolonged. Liver function test revealed significant liver injury. USG abdomen showed ascites. ABG showed metabolic acidosis.

Investigation revealed he had acute renal failure with intravascular hemolysis, rhabdomyolysis; coagulopathy, liver injury and metabolic acidosis. He was treated with conservative management. On the second day of admission he developed Mobitz type 1 Second degree AVB which was transient and later he had Sinus bradycardia persisting for around 5 days. Echocardiography showed LVEF: 45%, LV global hypokinesia with dilated LV. During the admission he underwent all together 5 times hemodialysis but his renal function was not improving maximum creatinine even reached 13.5 mg/dl and was made the suspicious of interstitial nephritis and steroid was added which showed the gradual improvement of renal function and patient was discharged on request after 20 days of admission. On regular follow up his renal function was gradually improving and become totally normal after 4 weeks.

Table 1. Laboratory results on the day of admission

	Normal range	Case 1	Case 2
Hemoglobin	11-16	13.2	15.4
WBC counts	4000-10,000 /uL	15700	21,600
Platelets counts	1.5-4.0 X 10^5 /uL		53,000
PT	12-15	15.24	16.9
aPTT	28-31	31.7	90.09
Urea	15-45	159	88
Creatinine	0.6-1.5	9.7	3.3
Sodium	135-145	120	131
Potassium	3.5-5.0	4.7	4.7
Calcium	8.0-10.5	11.4	9.6
Phosphorus	2.5-4.5	5.0	3.3
Protein	6.0-8.5 g/dL	5.7	4.3

Albumin	3.5-5.0	3.5	3.0
Biluribin Total Direct	 0.2-1.0 mg/dl 0.1-0.3 mg/dl	 1.0 0.4	 3.0 1.4
AST	5-40 U/L	58	1160
ALT	5-40 U/L	25	820
Alkaline Phosphate	110-310 U/L		166
Random blood sugar			
CPK total	10-80 U/L	3235	49950
CPK MB	1-24 U/L	183	590
ABG PaO2 (mmHg) PacO2 (mmHg) Ph HCO3 (mmol/l) SaO2 (%)	 60-80 35-45 7.35-7.45 23-28 > 92	 53 25 7.45 18.1 89	 61 43.7 7.29 18.2 91

Discussion

Wasps, bees, and certain ants use their weapon, a modified ovipositor, to protect themselves and the colony. Most species do so in a somewhat predictable manner, but others (notably, yellow jackets) may attack without apparent provocation. In temperate climates, stings may occur during any warm month, but their numbers peak in August.[4]

With wasp stings, the venom contains various biogenic amines. The pain produced by a sting is considerable and immediate because of injection of venom. Individual lesions, which develop in a few seconds, are erythematous and often papular and may be accompanied by varying degrees of edema and urticaria, sometimes involving large regions of the body. The specific reaction is venom-dependent.[5] If free of complications, typical lesions subside spontaneously over 4 to 6 hours; extensive local reactions may persist for several days.[1, 6] Local reactions should be treated with ice packs and analgesics. The efficacy of other agents, including antihistamines, corticosteroids, and topical papain (meat tenderizer) or baking soda, is unproved.

Although systemic reactions to venom occur in less than 5% of the population (anaphylaxis in probably less than 1%), serious allergic reactions are far more frequent in stings from Hymenoptera species than from any other arthropod and may cause more fatalities worldwide than reactions to venom of any other animal.[5,6] Renal failure or death may occur in the range of 20-200 wasp stings and may occur within 4 hours to 9 days of stings.[7] Fatalities are typically the result of renal failure or from cardiac arrest due to complications of the venom toxicity.[7]

The major causes of renal failure are acute tubular necrosis due to hypotension or pigment nephropathy resulting from rhabdomyolysis and intravascular hemolysis, and acute interstitial nephritis.[8] The toxic principles include active amines like histamine, serotonin, kinins, phospholipaseA2, hyaluronidase, mellitin and apamine.[9,10] Phospholipase A2 is believed to trigger the release of arachidonic acid from lipid in the cell membrane which initiates production of inflammatory eicosanoids. Hyaluronidase in the venom causes breakdown of chondroitins and hyaluronic acid in the connective tissues facilitating spread of venom.[9] The exact mechanism of rhabdomyolysis is not known but a direct toxic effect of venom on muscle is believed to be the main cause.[11] Nace et al. have reported a case of acute renal failure without rhabdomyolysis and hemolysis implicating direct venom toxicity as the probable cause.[3] The manifestations other than renal failure include myocardial necrosis and infarction, centrilobular necrosis of liver, and thrombocytopenia as a result of direct platelet toxicity.[12-14]

Insect bites and stings bites occasionally cause hypersensitivity responses that may include myocarditis, myocardial infarction or serious cardiac arrhythmias.[15] There is evidence in the literature that death following a wasp sting may result from cardiac involvement. Ferreira et al. describes acute cardiac lesions experimentally induced in Wistar rats submitted to intravenous inoculation of Africanized bee venom (ABV) and killed 1, 4, and 24 h after inoculation. Significant increases in serum enzyme levels were detected; light microscopy showed necrosis of the myocardium; and enzyme histochemistry showed inactivation of enzymes in and around the areas of necrosis. This is the first report of an acute necrotizing cardiac lesion, similar

to human myocardial infarction, produced by the inoculation of ABV.[12] The mechanism behind such development is believed that mast cells are present in cardiac tissue including coronary arteries and their density is increased in patients with coronary heart disease. Mast cell mediators (histamine, leukotrienes) have cardiotoxic effects, including vasoconstriction, negative inotropy and arrhythmogenesis. In mastocytosis, an increased mast cell density is also present in cardiac tissue and is responsible for severe cardiovascular symptoms during anaphylaxis and myocardial toxicity.[13, 14]

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Lecturer Notes (CME)

Mechanical Ventilatory Support

– Professor Digvijay S Timilsina

By the end of this tutorial the candidate should be able to do the following Objectives:

1. Classify respiratory failure.
2. Enumerate 4 subjective indications of ventilatory support.
3. Enumerate 3 values of pulmonary mechanics for mechanical ventilation.
4. Enumerate 5 values of gas exchange to order mechanical ventilation.
5. Elucidate 5 principles, 3 cautions and 3 methods of oxygen therapy.
6. Enumerate 8/8 check list for initiation of Mechanical ventilation.
7. Enumerate 5/5 criteria for adequate ventilation.
8. Enmerate 4/4 criteria to remove mechanical ventilation.

Respiratory failure:

Type I: This is hypoxemic type. Its usually parenchymal in origin. This can be simply defined as a PaO2 < 11Pka on FIO2 >= 0.4.

Causes:

1. V/Q mismatch: (Reduced or preferential perfusion of some lung areas) Pneumonia, Pulmonary edema, Pulmonary vascular disease, High cardiac output.
2. Shunt: (Normal perfusion but absent ventilation in some lung zones) Pneumonia, Pulmonary edema.
3. Diffusion limitation: (Reduced alveolar surface area with normal ventilation) Emphysema, (Reduced inspired O2) Altitude, Suffocation.
4. Acute ventilatory insufficiency. The patient is not ventilating at all.

Type II: Hypoxemic + Hypercapnic. This will be mostly mechanical in origin.

There will be acute rise in PaCO2 and respiratory acidosis (pH < 7.2). PaCO2 is directly proportional to CO2 production and inversely proportional to alveolar ventilation (minute ventilation – dead space ventilation)

Causes:

1. Respiratory center depression:
2. Peripheral neuromuscular disease.
3. Therapeutic muscle paralysis.
4. Loss of chest wall integrity.
5. High CO2 production.
6. Reduced alveolar ventilation.
7. Pulmonary vascular disease: Pulmonary embolus, CHF, ARDS.

Indications of MVS. (Subjective)

1. Acute ventilatory insufficiency (Type II respiratory failure)
2. Oxygenation failure (Type I failure)
3. Reduce ICP – reduction of PaCO2 to 4kPa causes cerebral vasoconstriction. This effect is transient and may impair an already critical cerebral blood flow.
4. Reduce work of breathing – needed in CHF and non-cardiogenic pulmonary edema. Now myocardial O2 demand is easier matched to O2 supply.

Indications for MVS. (Objective)

Pulmonary mechanics criteria:

1. Resp rate > 35.
2. VC < 10 ml/kg.
3. Maximum inspiratory force cm H2O (negative value) <25-35.

Gas exchange criteria:

1. PaO2 < 65-70 on added O2.
2. Alv-arterial O2 difference on 100% O2 >350.
3. PaCO2 > 50.
4. Vd/Vt > 60%.
5. Qs/Qt > 20%.

Oxygen therapy

All critically ill pts should receive O2 supplement on a more and not less is best philosophy.
Familiarity with the term oxygen consumption is critical to understanding oxygen therapy. The calculation for oxygen consumption is done by the formula

Vo2 = AVO2 difference X CO/100.
Vo2 = Oxygen consumption
AVO2 difference = Aterial venous oxygen difference
CO = Cardiac Output.

Amount of O2 in whole blood is bound to Hb 1.38 mL O2/gm Hb and a small amount in plasma 0.003 mL/mm of O2 tension.

O2 content = (1.38XHbXSaO2) +(0.003XPo2)

Hb 15,PaO2 100%, PvO2 40%, SaO2 97% and SvO2 75%. C/O 6 L/min.

CaO2 20.4 vol% CvO2 15.6% vol% and VO2 288 mL/min.

Here pt breathes air FIO2 20%. If we raise FIO2 to 100% the amount of dissolved O2 in plasma increases from .3 to 2.0 vol%. Hb sat increases from 97% to 100%.

Hb of 10% reduces CaO2 to 13.7 vol%, if we reduce C/O to 3 L/min Vo2 would fall to 96 mL/min.

Thus if we want to improve tissue oxygenation then consider all factors of O2 transport.

O2 Therapy (Principles)

1. High flow high conc^{n} O2 should be given any dyspnoeic or hypoxemic pt unless accurate titration is obtained with ABG.
2. Maintain SaO2 @ > 90% preferably > 95%.
3. Accept > 80%-85% (a compromise) only for ARDS/Acute resp failure and acute on chronic hypoxemic patients.
4. All pts on ventilator should receive high FIO2 till ABG available.
5. No need to maintain high PaO2 unless CO poisoning and diving accidents.

O2 Therapy (Cautions)

1. Small % of Type II failure who are maintaining their resp drive on hypoxemia may go to apnea if supplement O2 given. This is very rare and never abrupt. Deterioration and drowsiness will always alert us to put on ventilator support or respiratory stimulants.
2. Normal SaO2 may obscure deteriorating exchange and progressive hypercapnia.
3. O2 toxicity is described in animal models and volunteers. N2 washout can lead to microatelactasis. But the relevance and relative significance of this is much less as compared to other forms of ventilator trauma.

Corollary: All ill pts need constant and active monitoring. Give O2 rather than not.

O2 Therapy (Monitoring)

1. Always know the FIO2.
2. Always know the saturation values.

O2 Therapy (Methods)

1. Nasal spectacles: Give imprecise FIO2. Use only when hypoxemia is not a major concern.
2. Venturi mask: Can deliver reasonably accurate FIO2. Cannot humidify gas. May not be very accurate if high flow rates are needed. Very good for short term therapy.
3. Anesthetic bag and mask: Most accurate delivery and monitorable O2 therapy method.

Initial check for ventilator setup list

1. Check for leaks.
2. Chock O2 is on.
3. FIO2 60-100%.
4. Vt 7-12 ml/kg.
5. Rate 10-15/min.
6. I/E: 1:2.
7. Peak pressure <40.
8. PEEP 0-5.

Vt : in COPD smaller Vt and is needed to allow for prolonged expiration.

Rate: Should be used to deliver MV of 80-100 ml/kg/min.

Inspiratory flow: 40-80 l/min. Higher flow is more confortable to pt and allows for longer expiration. This will be associated with increased peak airway pressures.

I/E ratio: This is a function of Vt, inspiratory flow, and inspiratory time. Prolonged inspiration is good for ARDS and prolonged expiration for asthma. Alert pt will be more comfortable with short inspiratory times and high inspiratory flow.

Airway pressure in pressure controlled circuits the peak circuit pressure rather than the alveolar pressure can be set usually @ <40 cm H2O.

Increasing FIO2 cannot improve oxygenation b/c of shunting. 100% O2 will promote atelactasis. More than 48h will promote O2 toxicity.

PEEP will improve FRC, optimizes V/Q matching and prevents alveolar collapse. PEEP can cause barotraumas and decreased C/O. C/O will decrease if PEEP above 10 and in such cases consider Swan Ganz.

At FIO2 of 40% PaO2 > 60 and SaO2 > 95%, gradually reduce PEEP by 3-5 cm /12 h till PEEP is @ or < 5.

Now consider IMV.

Adequate ventilation:

1. Rate < 25/min.
2. Vt > 5ml/kg.
3. VC > 10 ml/kg.
4. MinV of < 120 ml/kg.
5. Insp force of < -20 cm H2O.

Now give 30 min trial of spontaneous ventilation on ETT with O2 supplement.

Wean if:

1. Rate < 25.
2. HR < 120.
3. PaO2 > 60.
4. PaCO2 < 45.

Such pt can sustain ventilation and oxygenation without tiring.

Review Objectives

1. Classify respiratory failure.
2. 4 subjective indications of ventilatory support.
3. 3 values of pulmonary mechanics for mechanical ventilation.
4. 5 values of gas exchange to order mechanical ventilation.
5. 5 principles, 3 cautions and 3 methods of oxygen therapy.
6. 8/8 check list for initiation of Mechanical ventilation.
7. 5/5 criteria for adequate ventilation.
8. 4/4 criteria to remove mechanical ventilation.

Nepali Section

सुरक्षाशास्त्र र चिकित्सा पद्दती

प्राध्यापक दिग्विजय शर्मा तिमिल्सिना[1],
प्राचार्य गण्डकी मेडिकल कलेज, पोखरा
इमेल - principal@gmc.edu.np

परिचय (भूतकाल प्रभावित दृष्टान्त)

मानवले सहजै अनुमान गर्छ कि कुनै पनि किसिमको हानी भएको छ भने कसैले व्यक्तिगतरुपमा हेलचक्र्याई, भुलचुक आदी गरेको हुनैपर्छ । मानवजातिमा विद्यमान यस्तो अत्यन्त गम्भीर र आधारहीन दृष्टान्तको व्याख्या गरौं । प्रष्ट्याउनको लागि केही उदाहरणहरुको प्रयोग गरौं ।

उदाहरण १

यात्रुवाहनले सडकमा खेलीरहेको बालकलाई ठक्कर मारेपछि बालकको दुःखद मृत्यु भयो । त्यसपछि उग्र भीडले त्यो वाहनलाई जलाईदियो । त्यो भीडले निकटका केही अन्य वाहनमा तोडफोड, चक्काजाम गरेर क्षतिपूर्तिको मांग गर्दै बाध्यकारी दबाब दियो । केही समयपछि उचित क्षतिपूर्ति पाएर सन्तोष गऱ्यो । मेरो मनमा प्रश्न उठ्यो - राजमार्ग त बालक खेल्ने स्थान थिएन । त्यो त वाहन गुडने क्षेत्र थियो । क्षतिपूर्ति वाहन पक्षले बेहोर्नु पऱ्यो । त्यो भीडले त्यसो उग्र व्यवहारको औचित्यकरण बालकको मृत्युका कारण देखाएर गऱ्यो । थप मृत्युहरु रोक्नेतर्फ कसैको ध्यान आकर्षित किन भएन ? त्यत्रो उर्जा क्षतिपूर्ति प्राप्तिपछि किन विलीन भयो ? सडक वाहनका लागि बनाइएको थियो भने त्यहां वाहन गुडेको कुरा जुन तर्कले पनि प्राकृतिक नै भन्नु पर्छ । बरु बच्चा सडकमा खेलेको अप्राकृतिक थियो । **हानी बच्चा पक्षमा भएकाले गल्ति वाहनपक्षमा ठहर भएछ ।** दुर्घटनाको मुलकारक बालक सडकमा खेलेको अवस्था थियो । त्यो बालक खेल मैदानको कमीले गर्दा सडकमा खेल्न पुगेको थियो, जसको कुरै भएन । अहिलेसम्म मैले ड्राईवर र अभिभावकहरुले परस्पर दोषारोपण गरेको मात्र सुनेको छु । दुर्घटनाको मुलकारक खेल मैदानको कमीले (अथवा त्यस्तै अन्य कारणले) गर्दा भएको हो भन्ने कुरा कसैले पनि बुझ्न चाहेको देखिएन । कुनै क्षतिपूर्ति मार्फत प्राप्त धनको प्रयोग खेलमैदानतर्फ गरिएको पनि मलाई थाहा छैन । पीडित पक्ष र सर्वसाधारणले दुर्घटना फेरि नहोस भन्नेतिर केही सोचनै न राखेको देखिन्छ । पीडित पक्षले आर्को पक्षलाई दोषी ठहर गऱ्यो । त्यो चालक लाइसेन्सधारी, आफ्नै साइडमा, गतिसीमा भित्रै थियो र अचानक फुटबलपछि बालक सडकमा आएर दुर्घटना भएको भएपनि चालक दोषी ठहरिन्छ ।

उदाहरण २

प्रायः समाचारमा पढिन्छ कि चिकित्सकको हेलचक्र्याईले गर्दा एउटा रोगीको मृत्यु भयो । त्यसपछि उग्र भीडले अस्पतालमा तोडफोड गरे अनि क्षतिपूर्तिको मांग गर्दै धर्नामा बसे । प्रत्युत्तरमा चिकित्साकर्मीहरुले कार्यक्षेत्रमा उचित सुरक्षा व्यवस्थाको मांग गर्दै हडताल गरे । आकस्मिकसेवा समेत ठप्प भयो । अब माथीको घटनाको परिणामको व्याख्या गरौं ।

- पीडित पक्षले केही क्षतिपूर्ति तुरुन्तै पाएपछि सन्तोष गरे ।
- सेवा ठप्प भएको कारणले केही भर्ना भएका र केही आकस्मिक रोगीहरुको मृत्यु भयो ।
- समाज र चिकित्सा-पद्दतीको अन्तरविश्वासमा कटौति भयो ।

मेरो मनले प्रश्न गऱ्यो - त्रुटि भएको भए वा न भएको भए पनि केही फरक पर्दो रहेनछ । दुबै खण्डमा अन्तिम परिणाम प्रारम्भिक घटनाभन्दा झन हानीकारक बन्न पुगेछ । कानूनको बेवास्ता गरेर भावुक उग्र पीडित पक्षले गल्ति गरे । सर्वसाधारणमा विशिष्टता पाएको चिकित्सा समाज पनि आफ्नै प्रतिक्रियाका कारण थप मृत्युको कारक बन्न पुग्यो । आफ्नो रोगीलाई हानी भएको मात्रै आधारमा जनताले सम्पूर्ण चिकित्सा प्रणालीलाई दोषी ठहर गरेछ । चिकित्सक अनुभवि, चिकित्सा प्रतिष्ठानमा दर्ता भएको, व्यवसायिक पद्दतीभित्र काम गरेको इत्यादि कुराहरुको अर्थ भएन । दुबै पक्षले यस्ता घटना नदोहरिन फेरि कुनै कुरा गरेको देखिएन ।

यस्तो **भूतकाल प्रभावित दृष्टान्त** जसमा भूतकालमा हानि भइसकेको तथ्य जानेर, सहजै पीडित पक्षले आर्को पक्षलाई दोषी करार गरेर सन्तोष गर्ने अभ्यासलाइ मान्यता गरिन्छ । यस्तो दृष्टान्त असल न्याय अवस्था-प्राप्ति को ठूलै रोकावट हो ।

चिकित्साक्षेत्र जोखिमपूर्ण क्षेत्र हो:

चिकित्सा-क्षेत्रमा पाल्ने रोगीहरु सिकिस्त अवस्थामा हुन्छन । एउटा रोगको निदान र उपचार क्रममा निर्णायक भूमिका धेरै कुराहरु द्वारा निर्धारण हुन्छ । जसरि रोगीको

१) **पूर्वावस्था** (पोषण: पूर्व विद्यमान रोगहरु - रक्तचाप, मधुमेह, दम: बाल्यकालमा पाएको प्रतिरोधक टिकाकरण आदी) ।

२) **तत्कालिक रोगका प्राणघातक गुण** (दुर्घटना, अर्बुद्धरोग, पक्षघात, हृदयघात, कलेजो मृगौला आदीको असफलता र अन्य) यस्ता अवस्थाहरु नगण्य छन् ।

३) **चिकित्सा क्षेत्रमा** रोगीले प्रवेश गरिसकेपछि बल्ल त्यहाँको भौतिक, उपकरणीय, मानवीय उपलब्धि र गुणस्तरका असर उसमा पर्छ ।

सजिलै अनुमान गर्न सकिन्छ कि १ र २ बुंदाहरुमा चिकित्साशास्त्रको तत्काल कुनै योगदान हुनै सक्दैन । तेस्रो बुँदामा पनि मानवीय उपलब्धिबाहेक चिकित्साशास्त्रको कति प्रत्यक्ष योगदान हुन सक्छ ? रोगको गतिलाई समाजकै कुनैपनि निकायले नियन्त्रण गर्न गाह्रो हुन्छ । रोगको रफ्तारलाई रोकथाम गर्न तत्कालीन चिकित्साकर्मी अग्रपङ्क्तिमा आँउछन् र जटिल स्थितिको समाधानमा लाग्छन् । रोगी भएर मरणासन्न अवस्थामा अस्पताल पुगे पछि, कस्तो परिणाम हुन्छ त्यसका सबै कारण अनियन्त्रित जस्तै छन् । यस्तै कारणले गर्दा विश्वभरिका समस्त चिकित्सा क्षेत्रलाई अति सम्वेदनशील एवं जोखिमपूर्ण क्षेत्र मानिएको छ । यसको गम्भीरता यतिसम्म छ कि चिकित्साक्षेत्रको मृत्युदर सवारी साधन, यात्रा दुर्घटना र युद्ध समेतको मृत्युदर भन्दा बढी नै हुन्छ । यस्तो भयावह सत्य चिकित्सा प्रणालीका सुरक्षाशास्त्रविज्ञहरुले अति विनम्रता एवं गम्भीरताका साथ आत्मालोचना गरेर स्वीकारिसकेका छन् ।
जोखिम त चिकित्साकर्मीहरुलाई पनि छ । सरुवा रोग, विकिरण इत्यादिको भौतिक जोखिम त सर्वदा हुने नै छ । कार्यक्षेत्र चिकित्सालय जस्तो विषण्ण छ । त्यसमाथि अप्राकृतिक र असम्भव अपेक्षा बोकेर आएका भावुक रोगी र अभिभावकहरुको माझमा दैनिक १६ देखि १८ घण्टा जीवन मरणको मध्य काम गर्नुपर्ने । हाम्रो समूहमा भग्नोत्साह, ह्रासभाव, धुम्रपान, मदिरापान, पाचुके र आत्महत्या जस्ता दुर्भाग्यपूर्ण अवस्थाको दर आमजनताको तुलनामा साह्रै धेरै पनि छ ।

वर्तमानमा चिकित्सा सेवा लाभदायक उद्योगको रुपमा स्थापित छ, साथै यो सेवा अत्यन्त जोखिमपूर्ण हुने तथ्य पनि अगाडी सारीसकेको छु । यस्तो अवस्थामा अन्य जोखिमपूर्ण (हवाई यात्रा, रसायनिक उद्योग, सेना, युद्ध र अन्तरीक्षशास्त्र आदी) उद्योगमा सफलतापूर्वक अपनाईएका नीति र पद्दतीको ठूलो खाँचो चिकित्सा प्रणालीमा पनि देखिएको छ ।
निम्न केही चर्चित घटनाहरु स्मरण गरौं:

१) शेरनोबिलको आणविक विस्फोट ।

२) थ्री माईल टापु (आइल्याण्ड) को द्रविकरण ।

३) भोपाल रसायनिक दुर्घटना ।

४) अन्तरिक्षयान च्यालेन्जरको विस्फोट ।

५) जापानी मछुवारा पानीजहाज र अमेरिकी सैनिक पनडुब्बीको ठक्कर ।

सबै पृथक घटना जस्तै देखिन्छन् । सबै जोखिमपूर्ण उद्योगका घटना हुन । सबैमा जटिल प्रणालीभित्र त्रुटी भएको पाइन्छ । सबैमा ठूलो जनहानी भएको थियो । सबै सञ्चार माध्यमका प्रमुख विषय भएकै थिए । यस्तो ठूलो विफलतामा मानवीय त्रुटिको योगदान साह्रै सानो थियो । चिकित्सापद्दतीजन्य त्रुटीले एक समयमा प्राय: जसो एक रोगीलाई हानी गर्छ । हालमा आएर मात्रै यस्ता दुर्घटना सञ्चार–माध्यममा चर्चाका विषय हुन थालेका छन् । चेतन समाजले बल्ल–बल्ल रोगी सुरक्षा र गुणस्तरीय चिकित्सा पद्दतीतिर दबाब दिएको देखिन्छ । चिकित्साक्षेत्रबाट यस पद्दतीमा सधैं रोगीको उद्वार र भलाईको प्रमुखता प्रतिको सुभाषण विश्वभरि नै हुने गर्छ । तर दुर्घटना भएपछि प्रत्येक राष्ट्रका चिकित्सा संस्थान र चिकित्साकर्मीहरुले आफ्नो स्वार्थलाई नै सर्वोपरि राखेर यस पवित्र प्रमुखताको हरण गरेको मात्रै देखिन्छ । हाम्रो देशमा रोगीलाई हानी भएपछि त्यसको कारकमा एक व्यक्तिविशेषको हेलचक्राई जनाएर रोगीलाई क्षतिपूर्ती दिएर सन्तोष गर्ने चलन छ । विश्वभरिमा नै चिकित्साशास्त्रले स्वीकार्नु पर्छ कि चिकित्सा उद्योगले अन्य समतुल्य उद्योगको अपेक्षा सुरक्षाशास्त्रको अल्पमूल्याङ्कन गरेकै छ ।

चिकित्साशास्त्रमा आत्म–मूल्याङ्कनको प्रमुखता

१९ शताब्दीदेखि चिकित्सा क्षेत्रमा अनुमति-पत्र प्रणालीको आरम्भ भयो । त्यसबेलादेखि नै चिकित्सा समाज र साधारण जनता

बीच अघोषित सम्झौता पनि भएको मान्नुपर्छ । चिकित्सा सम्बन्धी सबै निर्णयको एकाधिकार पाएको बदलामा हामीले वचन गऱ्यौं कि यस व्यवसायले आमहितका लागि आंफूलाई निरन्तर निरीक्षण र मूल्याङ्कन गरी सान्दर्भिक परिवर्तन गर्नेछ । आत्म–मूल्याङ्कन यस क्षेत्रको आवश्यक पक्ष हो । आफ्नै सहकर्मीको निरीक्षण यस क्षेत्रको अहम नैतिक उत्तरदायित्व मानिन्छ । जुन समाजले हामीलाई कार्यक्षेत्रमा एकाधिकार प्रदान गऱ्यो त्यस समाजमा हाम्रै कुनै समूहद्वारा हानी पुग्छ भने त्यसको सचेतना आमसमाजलाई दिनु र त्यस अवस्थाबाट आमसमाजको संरक्षण गर्नु हाम्रो बाध्यकारी कर्तव्य हो । यस शास्त्रमा प्राधिकृत गर्दा चिकित्साजन्य त्रुटीको प्रतिरोधक ज्ञान र सीपको कुनै स्थान र मूल्याङ्कन हुन्न । विश्वमा जहाँ पनि यस्तो व्यवस्था भित्राउने पहल गरियो हाम्रो चिकित्सा समाजले कडा विरोध गरेकै हो । अहिले स्वास्थ्य सेवाको क्रय तेस्रो समूह (बीमा कम्पनी) द्वारा हुन्छ । चिकित्सासेवा यस्तो सामग्री भयो जसको खरीद आम जनताको लागि बीमा कम्पनीले गर्छ । यस अवस्थामा बीमा कम्पनीहरुले उपचारसेवाको खर्च अववृद्धिलाई रोगीको सुरक्षा जत्तिकै प्रमुख मान्छन् । अस्पतालमा उपचार हुन्छ तर खर्च प्रत्यक्षमा बीमा कम्पनीले उठाउँछ । **सुरक्षित चिकित्साप्रणाली र गुणस्तरीय परिणाम सचेत जनताको उचित मांग हो** । यस्तो स्थितिमा पनि चिकित्सा प्रणालीमा गुणस्तरवृद्धि, निर्विघ्नता र संरक्षणवृद्धिका कुनै योजनालाई यस्ता तेस्रो समूहले प्रोत्साहित गरेको प्रायः पाइँदैन । सान्त्वना, विश्राम र निरोगिताको अभिभारा बोकेको हाम्रो समूहद्वारा पद्दतीजन्य त्रुटिले गर्दा रोगीकै हानी हुन्छ भने त्यो अवस्था अमान्य छ । हामीले अग्रसर भएर सूचनाको अधिकार रोगीलाई पनि दिनुपर्छ र चिकित्साक्षेत्र–जनता बीचको विश्वास सुदृढिकरणतिर तत्परताका साथ लाग्नुपर्छ ।

व्यापक र हानीकारक समस्या

इन्स्टिच्यूट अफ मेडिसिनको साल १९९९ को प्रतिवेदन To Err is Human पछी अमेरिकाको राज्य र सर्वसाधारण ईकाईहरुले चिकित्सा पद्धतिमा सुरक्षाशास्त्रप्रति साह्रै चाख देखाए । यस प्रतिवेदनमा अमेरिकामा मात्रै प्रतिवर्ष ४४,००० देखि ९८,००० मृत्यु चिकित्साप्रणालीजन्य त्रुटीका कारण भएको र त्यसको अनुमानित प्रत्यक्ष र अप्रत्यक्ष आर्थिक भार ३० अरब अमेरिकी डलर भएको उल्लेख छ । कुनै पनि उपचारमा सफलताका लागि सैयौं साना-साना कार्य पृथक निकायद्वारा परिमार्जित हुनैपर्छ । यसकारण साङ्ख्यिकीय तर्कले चिकित्सा पद्धतिमा प्रणालीजन्य त्रुटी अवश्यम्भावी प्रतित हुन्छ । भर्ना भएका २% रोगीहरुमा स्थायी आक्षेप अथवा मृत्यु निवार्य–योग्य चिकित्साजन्य त्रुटीहरुका कारण हुने अनुमानित छ । सेन्टर फर डिजिज कन्ट्रोल एण्ड प्रिवेन्शनको (www .cdc .gov/scientific . htm) प्रतिवेदनमा चिकित्साजन्य हानी संसारकै मृत्युको प्रमुख कारक सिद्ध भएको छ । यस अवस्थाको सरल भावरुपी परिभाषा कुनै पनि चिकित्सा प्रणालीजन्य हानीकारक त्रुटि हो ।–(कुनै पनि त्यस्तो कार्य गर्नु अथवा गर्नै बिर्सनु जसले अप्रत्याशित र अवाञ्छनीय परिणाम हुन्छ अथवा त्यस्तो परिणामको संभावना नै हुन्छ) । व्यवहारिकतामा असल योजनाको अपूर्णता अथवा अधम योजनाको पूर्णताद्वारा त्रुटीजन्य हानी सम्भव हुने गर्छ । **यस परिभाषामा भौतिक हानी नभएर त्यसको सम्भावना मात्रै भएपनि त्रुटी ठहर हुने दृष्टान्त पाठकहरुमा प्रष्ट होस** । अनुसन्धान र मूल्याङ्कनका लागि हामीले २ परिभाषा प्रयोग गर्छौं

१) सम्भावित क्षतिपूर्तियोग्य घटना ।

२) हानीकारक दुष्प्रतिक्रिया ।

पछिल्ला ३० वर्षमा भएका सबै शोधकार्यमा यी दुई पारिभाषिक प्रयोग गरिएका छन् । यस विषयको शोधकार्यमा धेरै फाइलहरुको पुनर्वलोकन आवश्यक हुन्छ । प्रत्येक चिकित्सकको मत लिनै पर्ने हुन्छ । चिकित्साविज्ञान यथार्थमा परमशुद्ध छैन - (**यस शास्त्रमा एउटै समस्याको अनेक उपाय र एउटै प्रश्नका अनेक उत्तर हुने भएकाले यो शास्त्र अशुद्ध विज्ञान मानिएको हो** ।) त्यसकारण प्रत्येक निरीक्षक र शोधकर्ताद्वारा भिन्न मत जाहेर हुने ठूलै सम्भावना हुन्छ । आश्चर्यजनक तथ्य के छ कि एक निरीक्षकले जुन घटनालाई निवार्य–योग्य करार गर्छ त्यही घटनालाई अर्का निरीक्षकले निवार्य–अयोग्य करार गर्ने सम्भावना त्यत्तिकै प्रबल हुन्छ । यस्तो भएकोमा शोध परिणाम निष्काशन गर्न सकिँदैन । शोधमा दुर्घटना भएकोमा निरीक्षकहरुमा पर्याप्त सहमति देखिन्छ । हेलचक्राँई भएकोमा पर्याप्त निर्णायक सहमति हुन प्रायः जसो सरल हुन्न । यसक्षेत्रमा विद्यमान असफलताहरुका गहम कारकको सूचीमा मैले राख्नैपर्ने चिकित्सा समाजका केही नीहित भाव छन् । यस्ता भावहरु यस क्षेत्रका अभिन्न, अत्यावश्यक र विश्वव्यापी पक्ष पनि हुन् ।

१) गोपनीयता ।

२) प्रधान र ज्येष्ठ अधिकारीप्रति पूर्ण समर्पण ।

३) कनिष्ठहरु र सहकर्मीहरुको संरक्षणप्रति प्रबल प्रवृति ।

चिकित्सासमाज सानो र विशिष्ट छ । यसको आन्तरिक संरचना अनुशासित र कस्सिएको छ । सेनामा समेत आन्तरिक विद्रोहका उदाहरण देखिन्छन् तर आन्तरिक शास्त्रजन्य विवादका कारण यसक्षेत्रमा विद्रोह भएको उदाहरण विश्वभरि पाइँदैन । प्रधान र ज्येष्ठ अधिकारीप्रति सम्पूर्ण समर्पण र कनिष्ठहरु र सहकर्मीहरुको संरक्षणप्रति प्रबल प्रवृति सैन्यसमाजमाभन्दा चिकित्सासमाजमा बढी मात्रामा देखिन्छ । यस अवस्थाले गर्दा चिकित्साक्षेत्रले आन्तरिक स्रोतद्वारा परीचित सुझावलाई सहजै स्विकार्छ तर, यस्ता उपाय कम प्रभावकारी नै हुन्छन । बाहिरी तटस्थ स्रोतद्वारा प्रभावकारी सुधार सम्भावना बोकेको जस्तोसुकै गुणस्तरीय सुझावलाई पनि यो कस्सिएको समाजले स्विकार्न गाह्रै मान्छ ।

यसक्षेत्रमा सुधारका धेरै ठाउँ भएकाले सुधारको प्रारम्भ बिन्दु रोज्न पनि साह्रै गाह्रो हुन्छ । श्री ल्याङ्गलेको - योजना, क्रिया, जाँच, प्रतिक्रिया परिवर्तन चक्र हाम्रो शास्त्रले व्यापकरुपमा अपनाएको छ । त्यसकारण सुधारका लागि परिवर्तन लक्षित सुझावको पूर्व शर्तमा हाम्रो समाजले निम्न प्रश्नहरुको स्पष्ट उत्तर खोज्दो रहेछ :

१) हाम्रो उद्देश्य के हो ?
२) परिवर्तन सुधार हो भनेर कसरी विश्वस्त हुने ?
३) परिवर्तनलाई सुधार बनाउन के गर्नुपर्छ ?
४) सुझावको जाँच कसरी गर्ने ?

यस चक्रलाई आधार मानी बाहिरी बहुमुखी तटस्थ स्रोतद्वारा प्रभावकारी सुधार उन्मुखी सुझावहरु स्वीकारी हाम्रो समाजले विचार, व्यवहार र दृष्टान्त परिवर्तन गर्नुपर्ने वर्तमानको एकदमै ठूलो सत्य हो ।

सञ्चार माध्यममा स्थान पाएका एकलरुपी चिकित्साप्रणाली जन्य त्रुटीहरु

१) डानो फार्बर क्यान्सर ईंस्टिच्यूटमा बस्टन ग्लोब ट्टर पत्रिकाको पत्रकारलाई लगाएको प्राणघातक इंजेक्शन ।

२) ड्युक युनिवर्सिटि मेडिकल सेन्टरमा असमान रक्तसमूहको मुटु+फोक्सो प्रत्यारोपण ।

प्रायः जसो यस्ता कुनै सञ्चारमा धेरै स्थान पाएको घटनाले त्यस देशमा चिकित्सा प्रणालीभित्र सुरक्षाशास्त्रको प्रवेश गराउने गर्छ । यस्ता विफलताहरु दुखद भए तापनि हामीले यसलाई समग्रमा एकलरुपी घटनाको संज्ञा दिन्छौं र यस्ता घटना फेरि दोहरिने प्रकारका हैनन् भनेर विश्वास गर्छौं । यस्ता त्रुटी लामो समयसम्म निरन्तर भएर धेरै जनतामा प्रचूर हानी गरेपछि हामीले चिकित्सा पद्दतीको भयावह विफलता भन्छौं ।

चिकित्सा पद्दतीमा प्रमाणित भयावह विफलताहरुका केही उदाहरण

१) इङ्गल्याण्डको रोयल ब्रिसटल इन्फर्मरीको बाल हृदय शल्यचिकित्सा विभागमा निरन्तर खराब परिणाम भएको सचेतना प्रशासनलाई हुँदा पनि त्यो विभागलाई कार्यशील राखियो । अन्त्यमा स्वास्थ्य मन्त्रालयले हस्तक्षेप गर्नुपर्‍यो । समीक्षण आयोगको प्रतिवेदनमा ३५ मृत्यु अनावश्यक र निवार्य भएको तथ्य प्रष्टाइयो । यस्तो खराब परिणामको सूचना रिफर गर्ने चिकित्सक, सर्वोच्च व्यवसायिक अगुवाहरु, सरकारी निजामति कर्मचारी र रोयल कलेज अफ सर्जन समेतलाई थियो ।

२) क्यानाडाको विनिपेग म्यानिटोबाको बाल हृदय शल्यचिकित्सा विभागमा पनि त्यस्तै अवस्था थियो । यस घटनाको समीक्षण प्रतिवेदनका निश्कर्ष साह्रै घतलाग्दा र सान्दर्भिक भएकाले म त्यसको समीक्षा यहीं गर्छु

- मृत्युको कारक कुनै एकल व्यक्तित्व थिएन ।
- शल्यचिकित्सक अनुमति प्राप्त, प्रशिक्षित र न्यायिकरुपमा योग्य थियो ।
- अनुभवको सीमाना तोक्न सकिन्न । त्यसकारण प्रश्न चिकित्सकको अनुभवमा मात्रै लगाउन मिल्छ ।
- त्रुटी हृदय शल्यचिकित्सा योजनाका सबै पाइलामा भेटिए ।
    - जनशक्ति बहालीमा कमजोरी ।
    - चेतक उपदेष्टा प्रणालीको कमी ।
    - शिकायत र फरियादी प्रक्रियाको कमी ।
    - सर्वघातक त्रुटी त त्यो प्रशासनिक निर्णयमा थियो जसमा यस्तो क्षेत्रमा बाल हृदय शल्यचिकित्सा केंन्द्रको परिकल्पना गरियो जहाँ न्यून रोगभारका कारण परिमाणमा श्रेष्ठता कायम गर्न नै असम्भव थियो ।

३) रोगको प्राकृतिक वृद्धिदर बुझ्न न्युजील्याण्डको न्याशनल विमेन अस्पतालमा २० वर्षसम्म पाठेघरको मुहानमा क्यान्सर भएका महिलाहरुलाई उपचार वञ्चित राखेर यस्तो परम अनैतिक अवस्थालाई २० वर्षको लामो अवधीसम्म कायम

राखियो ।

४) इङ्गल्याण्डका डाः ह्यारल्ड शिपम्यानले २३ वर्षावधीमा २०० भन्दा अधिक दीर्घकालीन रोगीहरुको स्वेच्छिक अनुरोधमा भए तापनि हत्या गरेकै हो ।

सामान्य त्रुटी हुने अवस्थाहरु

- औषधीको दुष्प्रतिक्रिया ।
- रगत चलाउँदा हुने दुष्प्रतिक्रिया ।
- गलत ठाउँमा शल्यक्रिया ।
- रोगीको गलत पहिचान । आदी

प्राणघातभन्दा भिन्न अवस्थाहरु

- चिकित्सालयमा बढी बस्नु पर्ने ।
- आयस्रोत अववृद्धि ।
- अपाङ्गता । आदी ।
- अनेक रोग एकैसाथ भएको अवस्था ।

यस्ता घटना पश्चात मूल्याङ्कन गर्ने नसकिने दुष्प्रभाव सर्वसाधारण–चिकित्सा प्रणाली बीचको विश्वासमा अववृद्धि हो । पीडित पक्षले शारीरिक र मानसिक यातना बेहोर्छ भने चिकित्साकर्मी हतोत्साहित हुन्छन । उत्तम उपचार गर्न नसकेका कारण हामीमा असीम हीनभाव आउँछ । यस्तो स्थितिको पूरा भार अन्त्यमा समाजले बेहोर्छ ।

गुणस्तर चिकित्सा प्रणाली के हो ?

त्रुटि बुझेपछि अब गुणस्तरको व्याख्या गरौं । वर्तमान व्यावसायिक ज्ञानमा आधारित चिकित्सा प्रणालीको उपयोग गरेर अनुमानित परिणाम पाउने सम्भावनालाई चिकित्साशास्त्रको गुणस्तर माने हुन्छ । यसमा ध्यानाकर्षण गर्ने शब्द छन् – वर्तमान व्यावसायिक ज्ञानमा आधारित र अनुमानित परिणाम । यसलाई बुझ्न उदाहरणको रुपमा कुनै रोगको वर्तमान व्यावसायिक ज्ञानमा १०% मृत्युदर, १०% दुष्प्रतिक्रियादर र ८०% सम्पूर्ण उपचारदर छ र जुनसुकै चिकित्साप्रणालीले यस मापदण्डभित्र परिणाम दिन्छ त्यसतालाई गुणस्तरीय प्रणाली भन्नुपर्ने हुन्छ । सम्भव छ कि केही समयपछि प्रतिशतमा फरक पर्ला । प्रतिशतमा मापिएका कारण कुनै एकल घटनाद्वारा अब चिकित्सा पद्दतीलाई योग्य र अयोग्य करार गर्न असम्भव छ तर हेलचक्रांईको अभियोग अझै सम्भव छ ।

चिकित्सा पद्दती विरुद्ध अभियोग र त्यसको प्रतिफल

चिकित्सा क्षेत्रमा जब अपक्रिया, दुराचरण र दुष्कृति देखाएर मुद्दा अथवा हुलको दबाब पर्छ त्यसको उद्देश्य यस्तो हुनुपर्ने होः

- त्रुटिपूर्ण प्रणालीद्वारा पीडित पक्षको उचित क्षतिपूर्ति ।
- अधम चिकित्सकहरुको पहिचान गरी अनुशासित गर्ने पहल ।
- चिकित्सा क्षेत्रमा गुणस्तरको वृद्धि ।

आजसम्म विश्वभरी जति पनि चिकित्सा क्षेत्र विरुद्ध मुद्दाहरु भए त्यसमा जसको जीत भए पनि उल्लेखित उद्देश्य प्राप्ति भएको कुनै संकेत छैन । लोकालियोद्वारा अपक्रियामा दायर मुद्दा र त्रुटिजन्य हानीको परस्पर सम्बन्धको शोधपत्रका तथ्य यस्ता छन् :

- मात्र १.५% त्रुटि पीडितहरुले मुद्दा दायर गर्छन् ।
- चलाइएका ८६% अभियोगमा चिकित्सापद्दतीजन्य त्रुटि प्रमाणित नै हुन्न ।
- ४६% क्षतिपूति चिकित्सापद्दतीजन्य त्रुटि प्रमाणित नभएको खण्डमा पनि प्रदान गरियो ।
- ४५% चिकित्सापद्दतीजन्य त्रुटि प्रमाणित भएका अभियोगमा क्षतिपूर्ति प्रदान गरिएन ।
- ४२% अभियोगमा न्यूनतम हानी भएका पीडितहरुले क्षतिपूर्ति पाए ।
- दुराचरण र दुष्कृतिमा परेको क्षतिपूर्तिको ३३% आर्थिक भार ५% चिकित्सक समूहमा पर्छ ।

यस शोधका निश्कर्ष

- क्षतिपूर्ति केसका ठोस गुण अवगुणमा आश्रित नभएर न्यायविज्ञको चातुर्य र त्यस घटनालाई सञ्चार माध्यमले दिएको महत्वले हुन्छ ।
- मुद्दा दायर गर्दा पीडित पक्षले केसको तटस्थ गुणभन्दा पनि भावुकतावश र आफ्नो न्यायिक सल्लाहकारको तर्कका आधारमा गर्दा रहेछन् ।

अधिकतम पीडितहरुले अभियोग चलाउँदैनन्, अभियोग चलाउने अधिकतम पीडितहरुको हानी त्रुटिजन्य अपक्रियाद्वारा हैन रहेछ र क्षतिपूर्ति पनि हानीको गम्भीरताको अनुपातमा प्रदान हुन्न रहेछ । ७०% पीडित पक्षले हेलचक्राइ भएको शंका निम्न घटनापछि गर्दा रहेछनः

- डाक्टरको अनुपलब्धि:
    - o रोगी सिकिस्त भएपछि धेरै पटक फोन, फोन गर्दा पनि डाक्टर ढीलो पुगे र मेरो मान्छे मऱ्यो ।
    - o नर्सलाई थाहा नै थिएन डाक्टर कहाँ थिए ।
- संस्कार र भावुकताको अपमूल्याङ्कन– प्राणत्यागको अवस्थामा न्यूनतम गम्भीरता र भावुकता प्रदर्शन भएन भने आफन्तहरु रुष्ट हुन्छन् ।
- प्रतिसूचनाको कमी :
    - o मन्जुरीनामा नगराइएको ।
    - o रोगीलाई उपचारक्रममा निरन्तर सचेत नगरेको ।
    - o अवस्था गम्भीर भएको कारण नखुलाएको ।
- रोगीको धरणा नसुनेको ।

अब प्रष्ट हुन्छ कि पीडित पक्षहरु कुन आधारमा हेलचक्राइ भएको शंका गर्छन् । माथिको तालिकामा स्पष्ट छ मूल्याङ्कन वैज्ञानिक पद्दतीको नभएर व्यवहारकुशलताको हुन्छ । त्यसकारणले गर्दा प्राय: जसो कानुनी निर्णय अन्त्यमा पीडित पक्षको विपरीत जान्छन् । अभियोग चलाउने व्यवहार चिकित्सा पद्दतीको गुणस्तरसँग स्वतन्त्र छ भन्ने तथ्य प्रष्ट भयो । गुणस्तरमा जती वृद्धि भएपनि अपक्रियाका अभियोगमा कमी आउने छैन । प्रशासनिक र व्यवसायिक दण्डको कठोरता ठाडै आर्थिक दण्डको अनुपातमा गरिएको देखिन्छ । कानुनी प्रक्रिया मार्फत उत्तम निर्णयको असम्भवता हेरिसकेपछि यो आर्थिक दण्डको कुनै पनि औचित्यकरण कसरी गर्न सकिन्छ ? (**यस्तो अवस्थाले न्यायिक प्रक्रियाको विफलता हैन मात्र चिकित्सा शास्त्र यथार्थमा परमशुद्ध नभएको बोध गर्छ ।**) सान्दर्भिकताकै कुरा गर्ने हो भने हामीले नै सर्वश्रेष्ठ तोकेका सस्ंथा र चिकित्सकहरुलाई जटिलतम केस गर्न खटाउने गर्छौं । दुष्प्रतिक्रिया दर पनि सर्वश्रेष्ठ क्षेत्रमा नै हुने भयो । सहज अनुमान गर्न सकिन्छ कि अभियोगको मार कुन समूहले बेहोर्नुपर्छ । अभियोग दायर गर्दा अधम चिकित्सकको परिभाषा प्रष्ट होस :

- कुनै पनि गैरकानुनी कार्य गरिएकोमा ।
- नशायुक्त अवस्थामा कार्यरत भएकोमा ।
- असत्य प्रतिवेदन अनुमोदित र प्रमाणीकरण गरेमा ।
- रोगीसँग शारीरिक/यौन सम्पर्क राखेमा ।
- आकस्मिक रोगको उपचार नगरेमा ।

कुनै चिकित्सकले अस्पतालको प्रणाली भित्र कार्यरत भएर उपचार गर्दा गर्दै रोगीको हानी हुन्छ भने त्यो प्रणालीजन्य हानी हुन्छ । उदाहरणार्थ गलत मृगौलाको शल्यचिकित्सा (पश्चिमाञ्चल क्षेत्रीय अस्पतालमा साल १९९८/१९९९ को घटना) पनि शल्यचिकित्सक–जन्य थिएन अपितु प्रणाली–जन्य थियो । शल्यचिकित्सा प्रक्रियाको अगुवा सर्जन भएता पनि यो पूरा समूहद्वारा मात्रै पूर्ण हुने प्रक्रिया भएकाले यस्तो तर्क उचित हुन्छ । हेलचक्रयाइँको अभियोगहरुमा पनि प्राय: प्रणालीजन्य त्रुटी पाइने गर्छ ।

आशा गर्न फेरि पनि सकिन्छ

स्वास्थ्य प्रणालीको अत्यावश्यक विकेन्द्रिकरण यस अवस्थाको माहामारीका रुपमा फैलिनुको मुख्य कारण हो । विकेन्द्रिकरण पश्चात चिकित्सा प्रदान गर्ने धेरै संस्थानहरु हुन्छन् र सबै पृथक-पृथक वातावरण र अवस्थामा काम गर्छन् । यस्तो अवस्थामा साझा मूल्याङ्कन कठिन हुन जान्छ र त्रुटीको सम्भावना बढ्दै जान्छ ।

हालका केही परिस्थितीहरुले यस्तो अवस्थामा परिवर्तन हुने संकेत गर्छ -

१) आमसमाजमा बढ्दो उत्तरदायित्वको माग ।

२) चिकित्साशास्त्रका गुणस्तर र रोगीका परिणाम नाप्ने पद्धतिहरुको निरन्तर विकास ।

३) चिकित्सा संस्थाहरुमा अन्य उद्योग सरह सैद्धान्तिक र दूरदर्शी व्यवस्थापक अगुवाइको प्रवेश ।

यस्ता त्रुटिहरुको प्रतिरोधात्मक प्रणाली र ज्ञान हामीसँग छन् । यस ज्ञान र पद्दतीको विकास गर्न सकियो भने आगामी ५ वर्षमा चिकित्सा पद्दतीजन्य त्रुटिमा ५०% कटौतीको लक्ष्य सम्भव छ । बजारमा आधारित, अनुशासनिक प्रोत्साहन: व्यवसायी र संस्थाहरुमा समीकरण यस्तो व्यवस्थाको पूर्वाधार हो । मानवका सम्पूर्ण माप्य क्रियाहरुलाई साङ्ख्यिकीविज्ञले गौस्सयिन वक्रतामा अङ्कित गर्न सकिने मान्छन् । औसत कारक २ स्ट्याण्डर्ड डेविएशनभित्र पर्छन् र यसको बाहिर पर्ने कारकलाई उत्तम वा अधम मान्न सकिन्छ । उत्तम भनेर चिनाएको समूहलाई पुरस्कृत गर्न चिकित्सा समाजमा अधिकतम सम्मान गरी जटिलतम रोगका उपचरार्थ प्रयोग गरिन्छ । उत्तम समूह छ भने अधम समूह पनि निश्चित नै छ । न्यूनतम ज्ञान, सीप नभएका र यस

क्षेत्रमा आवश्यक वाञ्छनीय नैतिकताको उत्तरदायित्व नराखेका चिकित्सा व्यवसायीलाई हालको लागि अधम भने हुन्छ ।
कार्यउन्मुख व्यवहारविज्ञानमा कार्यलाई कार्यतालिका प्रमुख र ध्यान प्रमुख गरी पृथकीकरण गरीएकाले त्रुटीलाई पनी कार्यतालिका प्रमुख (भुलचुक) र ध्यान प्रमुख (गल्ती) भनेर फरक गरौं । भुलचुक कार्यतालिकाको अनुशरणमा त्रुटी हो यसका उदाहरणमा

१) समयनिष्ठ कर्मचारी कुनै कारण ढीला पुगेछ ।

२) गहन चिकित्सा इकाईमा धेरै ठाउँमा डाकिएको नर्सले औषधीको गलत मात्रा दिएछ ।

यस्ता त्रुटीहरु त्यो कर्मचारीको प्राकृतिक व्यवहार नभएकाले दोहरिने संभावना न्यून हुन्छ र यसको प्रतिरोधक उपाए सरल कार्यतालिकाको विकास र कठोरताका साथ कार्यतालिकाको अनुशरण हो । अघिका उदाहरणमा अलार्म घडीको प्रयोग र जति हतारिने अवस्थामा पनि निर्देशानुसार मात्रै औषधी चलाउने बानीको विकास ।

गल्ती ज्ञान र सीपमा कमीका कारण हुने गर्छन् । कुनै मान्छेले केरालाई टमाटर भनेर चिन्छ भने उसको अल्पज्ञानका कारण थप प्रशिक्षण उपलब्ध नभएसम्म त्यो त्रुटी दोहरिने संभावना प्रबल नै हुन्छ । कुनै डाक्टरले हृदयघातलाई अमलपित्त जनाउँछ भने जबसम्म उसलाई थप प्रशिक्षण प्रदान गरिँदैन यो गल्ती दोहरिने निश्चित छ । त्रुटी व्यवस्थापनमा कार्यउन्मुख व्यवहारका तर्क अपरिहार्य हुन्छन् ।

मुलकारक विश्लेषण

यस्तो सम्वेदनशील र अशुद्ध शास्त्रको त्रुटीजन्य बिन्दुको पहिचान त्यति सरल हुन्न । प्रायः जसो त्रुटीजन्य दुर्घटना पश्चात प्रतिक्रियात्मक प्रक्रिया गरिन्छ । हालसम्म मुलकारक विश्लेषण प्रक्रियामात्र यस्तो समस्यामा वैज्ञानिक र उपयोगी सिद्ध भएको छ । यसको तुलना प्रतिक्रियात्मक प्रक्रियासँग गर्न एउटा उदाहरण मार्फत गरौं ।

सम्वेदनशील औषधीहरुलाई निश्चित मात्रा र पूर्वनिर्धारित रफ्तारमा रोगीको शरीरमा प्रवाहित गर्ने मशीन इन्फुजन पम्प हो । अब एउटा घटनाको कल्पना गरौं । यो पम्प प्रयोग गर्दा गलत मात्रा–व्यास अकिंत गरिएछ । त्यसकारण अधिक मात्रामा औषधी शरीरमा प्रवाहित भएर रोगीको मृत्यु भयो । यस्तो समस्याको प्रतिक्रियात्मक र मुलकारक विश्लेषण प्रक्रिया दुबैको प्रतिफल हेरौं ।

प्रतिक्रियात्मक प्रक्रिया: गलत मात्रा–व्यास अकिंत गर्ने नर्सको पहिचान गरेर तत्काल अनुशासनीय दण्ड दिने । यस्तो प्रक्रिया निर्विवाद र सामान्य प्रयोगमा गरिने हो । यसले त्रुटी व्यक्तिजन्य भएको जनाएर कारक व्यक्तिलाई दण्ड दिएर उत्तरदायित्व वहन गरेकोमा सन्तोष गर्छ ।

मुलकारक विश्लेषण प्रक्रिया: यो पम्प साह्रै महङ्गो छ । ७०० शैयाको यस अस्पतालमा यस्ता जम्मा ३ पम्प छन् । जहाँ पनि रोगीको जटिल अवस्था हुन्छ त्यो पम्प उपलब्ध गराइन्छ । सबै पम्प भिन्न कम्पनीका थिए र सबैको प्रयोग विधि पनि फरक थियो । तालिम दिंदा नर्स समूहलाई प्रतिसमूह एक पम्पमा मात्रै अभ्यास गराइएको थियो । पम्पमा अकिंत निर्देश पनि जापानी भाषामा छन् । यस्तो अवस्थामा जुन–सुकै तालिम प्राप्त नर्सले पनि त्यो भुलचुक गर्न सक्दथ्यो । यसले त्रुटी प्रणालीजन्य भन्छ र प्रणालीमा सुधार गरेर (सबै निर्देश बुझ्ने भाषामा अकिंत गरेर) उत्तरदायित्व वहन गरेकोमा सन्तोष गर्छ ।

प्रारम्भ कसरी गर्ने:

चिकित्सा पद्दतीमा प्रमाणित भयावह विफलताहरुका उदाहरणको विश्लेषण गर्दा: यस्ता गहन विफलताका केन्द्रबिन्दुमा कुनै एकल व्यक्ति अथवा सानो समूह देखिन्छ । सम्पूर्ण प्रणाली असफल भएको हुन्न । तर यस्ता संस्थाहरुमा

- गुणस्तर पुनःमूल्याङ्कन ।
- अप्रत्याशित घटनाहरुको प्रतिवेदन ।
- कार्यकौशल व्यवस्थापन ।

जस्ता बुनियादी प्रणालीहरुको कमी थियो । चिन्ता व्यक्त गर्न त्यहाँका कर्मचारी अशक्त र भएभित नै थिए । संस्थाहरुले त्रुटीजन्य हानी भएको ज्ञान भए तापनि कुनै परिवर्तनमुखी प्रतिक्रिया गरेनन् । शंकित हुनमा त ढिलाई गरे नै प्रतिक्रियामा झन सुस्ती प्रदर्शन गरे । सुरक्षित चिकित्सा पद्दती र गुणस्तरीय परिणाम निर्विकल्प हो । अनुत्तरित प्रश्न भनेको सुरक्षित चिकित्साप्रणाली र गुणस्तरीय परिणाम कसले निर्धारण गरे उचित हुन्छ ? न्यायपालिका र सर्वसाधारणको नेतृत्वमा यसको

समाधान गाह्रो भएको तर्क मैले अगाडी राखिसकेको छु । विश्वमा ३ योजनामात्र यसतर्फ चलाइएका छन् । सबै अमेरिकादेखि सुरु भएर युरोपमा विस्तारित भए । सबै शल्यचिकित्सा सम्बन्धी थिए । शल्यचिकित्साका परिणामको मूल्याङ्कन सर्वसाधारणले पनि सजिलै गर्न सक्दछन् साथै यस प्रणालीमा रेकर्ड राख्ने पद्दती सुदृढ भएकाले शल्यचिकित्साशास्त्र गुणस्तर वृद्धि र परिणाम मूल्याङ्कनको अग्रपङ्क्तिमा पर्छ । तिनीहरुको उदाहरणको समीक्षाले समाधानको बाटो पहिचान हुन सक्ने हो ।

१) VA-NSQIP (Veteran Affairs National Surgical Quality Improvement Program)

परिणामको विश्लेषण गरेर गुणस्तरमा वृद्धि लक्षित गर्ने यो विश्वकै सर्वप्रथम प्रयास हो । जोखिमको अनुपातमा शल्यचिकित्साका परिणामको विश्लेषण गरेर त्यसको प्रतिसूचना शल्यचिकित्सकलाई उपलब्ध गराइयो । प्रतिक्रियात्मक कार्यशैली परिवर्तनलाई प्रोत्साहित गरियो । यस योजनाको अन्त्यमा त्यस्ता श्रेष्ठ शल्यचिकित्सक समूहमा पनि प्रणालीजन्य दुष्प्रतिक्रियादरमा ३०% कटौति सम्भव भयो । यस योजनाको सफलताका मुख्य कारक शल्यचिकित्सकहरुको उत्साहजनक सहभागिता थियो । यस योजनाका प्रमुख निश्कर्ष यस्ता थिए:

- प्रायः त्रुटि चिकित्सकजन्य नभएर पद्दतीजन्य हुन्छ ।
- वर्तमानका श्रेष्ठ चिकित्सा समूहमा पनि ३०% सम्मको न्युनतम सुधार सम्भव छ ।
- पद्दतीजन्य त्रुटि प्रमुख भए तापनि चिकित्सक समूहले उचित व्यवहार परिवर्तन गरेमा गुणस्तर–वृद्धि तत्कालै प्रदर्शित हुन्छ ।

यसको सीधा संकेत के छ भने त्यस्ता पद्दतीको विकास जसमा उत्तम कार्य गर्न सजिलो र त्रुटिजन्य कार्य कठिन होस । उदाहरणका लागि कुनै रोगी अस्पताल पुग्छ भने त्यसको रोग निदानमा ५–१० मिनेटको सोधपुछ र ५ मिनेटको समय प्रयोगशाला परीक्षणको निरीक्षण र रोगानुसार सुझावका लागि आवश्यक हुन्छ । अर्थात एक रोगीलाई कम्तीमा १० मिनेट र २ पटक हेर्नैपर्ने हुन्छ । अन्य रोगीलाई जाँच्न पठाउने समय जोडेर १ घण्टामा ५ नयाँ रोगीभन्दा बढी जाँच्न असम्भव देखियो । अब हामीले बहिरङ्ग सेवाको पद्दती यस्तो बनाउनु पर्‍यो जसमा एक रोगीको जांच कोठामा प्रवेशपछि ५ मिनेटसम्म अर्को रोगी भित्र र पहिलो रोगी बाहिर आउन नसकोस । यो भन्दा बढी रोगी परीक्षण गर्न चिकित्सकलाई खटाइयो भने कुशलतम चिकित्सकले पनि भुलचुक गरी हाल्नेछ ।

२) Leapfrog Group:

मृत्युदर सजिलै माप्न सकिने, आधारभूत र प्रष्ट परिणाम हो । यो परिणाम शल्यचिकित्सकको निपुणता र त्यो अस्पतालमा त्यो खास रोगको भारमा निर्भर गर्छ (स्मरण होस न्युनतम रोगभार छैन भने कुशल चिकित्सकले पनि परिणाममा श्रेष्ठता कायम राख्न सक्दैन ।) चिकित्सा पद्दतीमा गुणस्तर र सुरक्षाको बढ्दो जनदबाबका कारण यस समूहको साल २००० मा स्थापना भयो । यो बीमा कम्पनीहरुको ठूलो गठबन्धन हो जसले ४ करोड भन्दा बढी अमेरिकी नागरिकहरुको स्वास्थ्य बीमा गराई सकेको छ । आफ्नो विशाल क्रयशक्तिको प्रयोग गरेर यस समूहले त्यस्ता संस्थाहरुसँग मात्रै कारोबार गर्छ जसले यस समूहले तोकेका रोगभार र मृत्युदरका मापदण्ड कायम गर्छ । मापदण्ड वैज्ञानिक र तर्कयुक्त छन् र चिकित्सा समाजमा मान्य पनि छन् । यस योजना विरुद्धका यस्ता टिप्पणी छन् :

- मापदण्ड सबै प्रक्रियामा निर्धारित छैनन् र मात्र १० जति प्रक्रियाका परिणामद्वारा समस्त प्रणालीको मूल्याङ्कन गरिन्छ ।
- रोगभार नै मापदण्ड भएकाले नयाँ संस्थाहरुसँग यस समूहको कारोबार कठिन छ ।

३) QSS (Quality Surgical Solutions)

यो अस्पताल, चिकित्सक र बीमा कम्पनीहरुको मिलोजुलो गठबन्धन हो । यसले पहिले त राष्ट्रभरीका सर्वश्रेष्ठ शल्यचिकित्सकहरुको पहिचान गर्‍यो । श्रेष्ठताका आधार थिए:

- उच्चतम गुणस्तर ।
- नैतिकता ।
- उचित सेवाशुल्क ।
- न्युनतम दुष्प्रतिक्रियादर ।

यस्ता श्रेष्ठ समूहबाट स्वेच्छाको आधारमा चिकित्सकहरुलाई यस योजनामा खटाइयो । यस समूहले प्रत्येक प्रक्रियाको सर्वोत्तम–अभ्यास मापदण्ड निर्धारण गर्‍यो । यस्ता मापदण्डद्वारा शल्यचिकित्सकको मूल्याङ्कन प्रारम्भ गरियो । सर्वोत्तम अभ्यासका मापदण्ड र प्रक्रिया अवगत गराएर सम्पूर्ण चिकित्सा समाजमा गुणस्तर वृद्धितिर दिशानिर्देश भयो । गुणस्तरका पहिचानका सान्दर्भिक र उल्लेखनीय थप मापदण्ड यस प्रकारका छन् :

- रोगीको कार्यक्षेत्रमा पुनः पुग्ने अवधी ।
- बिरामी बिदाको खपत ।
- परिवारमा पर्ने अस्पताल खर्च बाहेकका आर्थिक भार (परिवारजनको कार्यक्षेत्रमा अनुपस्थिति र बिदा

प्रयोग) ।

परस्परको निर्भरतामा आधारित यो व्यवस्था हालसम्मका प्रयासमा अधिकतम प्रभावकारी भएको छ ।

हामिले यस्ता त्रुटिजन्य हानी निष्ठावान जनशक्तिले अपुर्ण व्यवस्थाभित्र काम गर्दा हुने पुर्वानुमान गर्नै पर्छ । हानीको सम्भावना कम गर्न त्रुटिजन्य परिस्थितिहरुको समाधान एक मात्र उपाय देखिन्छ । **यस्ता परिस्थितिहरु दोषारोपणका कारक हैनन सुधारका मौका हुन ।**

हाम्रो परिवेशमा कुनै पनि अस्पतालमा कम्तिमा यसतर्फ गर्न सकिने उपायहरु हुन:

१) प्रत्येक मृत्युको अनिवार्य विश्लेषण ।
२) प्रत्येक जटिल, दुर्लभ उपचारक्रम अपनाउनु अगि छलफल ।
३) अप्रत्याशित परिणाम -उत्तम, अधम दुबैको गहन विश्लेषण ।
४) सर्वसाधारणसँग अनिवार्य, निरन्तर अन्तरक्रिया ।
५) स्वेच्छित रिपोर्टिङ्गको प्रोत्साहन ।
६) झण्डै भएका घटनाहरुको गहन, गम्भीर विश्लेषण ।

(Focus on near misses)

माथिका सबै उपायहरुमा झण्डै भएका घटनाहरुको गहन, गम्भीर विश्लेषण (Focus on near misses) साह्रै सान्दर्भिक छ । दुर्घटनाभन्दा ३०० पटक बढी हुने र हानी नभएको यस्तो अवस्थालाई पर्याप्त महत्व दिएर त्रुटिजन्य प्रणालीको उपाय खोज्न सकिन्छ । यसको विश्लेषण गर्दा भूतकाल-प्रभावित पूर्वाग्रहित दृष्टान्त (Hind sight bias) हुन्न (यस दृष्टान्तमा हानी भइसकेको कारण स्वास्थ्य सेवा अधम भएको भूतकाल-प्रभावित पूर्वाग्रह हुन्छ) । जब अप्रत्याशित परिणाम -उत्तम, अधम दुबैको रिपोर्टिङ्ग गर्ने संस्कारको विकास हुन्छ तब हामीले सुधारतर्फ पहिलो कदम चाल्ने छौं ।

निष्कर्ष

स्वास्थ्य सेवाका खरिदारहरुले हाम्रो सुक्ष्म निरीक्षण गर्दै छन् । समाजले बीमा कम्पनीद्वारा प्रकाशित परिणामको ठूलो मूल्याङ्कन गर्छ । रक्तचाप नियन्त्रणको लक्ष्य हृदयघातको प्रतिरोध भए जस्तै गुणस्तर वृद्धि र सुरक्षाशास्त्रको समावेशीकरण सम्पूर्ण चिकित्सा पद्दती र जनता बिचको विश्वासलाई संरक्षण गर्ने उपाय हो । चिकित्सा समाजको अगुवाई र बीमा कम्पनी, न्यायपालिका र आमजनताको प्रतिनिधी सबैको संलग्नता भएको इकाईले मात्रै यसतर्फको सुधार सम्भव छ । आफ्नो अघोषित वचन स्मरण गरेर आत्म–मूल्याङ्कन गरी आफूमा उचित परिवर्तन ल्याउनु आजको हाम्रो बाध्यकारी आवश्यकता हो । हालमा सर्वसाधारणले हानी हुने बित्तिकै बाध्यकारी सामाजिक दबाब दिन थालेका छन् । यस व्यवहारले क्षतिपूर्तिमात्र उपलब्ध गराउन सक्छ । सर्वसाधारणले बुझ्नुपर्ने यति मात्रै हो । अवाञ्छित र अप्रत्याशित परिणाम पछि शंकित हुनु सचेतनाको पहिचान हो र यसको प्रोत्साहन आधुनिक चिकित्साशात्र पद्दतीमा हुन्छ । हजुरको शिकायतले पद्दती सुधारतिर हामीलाई अग्रसर राख्छ । आफ्ना प्रतिवेदन चिकित्सा परिषद्मा प्रस्तुत गरेर पहिले त्रुटिजन्य हानीभएको प्रमाणित गरेरमात्र कानुनी अथवा सामाजिक दबाब दिने बानी राख्नुभयो भने मात्रै हजुरले हाम्रो पद्दती सुधारमा योगदान पुऱ्याउनुहुनेछ साथै उचित क्षतिपूर्ति पनि पाउनुहुनेछ ।

उदासपना रोग (Depressive Disorder)

डा. निर्मल लामिछाने
नशा, स्नायु तथा मानसिकरोग विशेषज्ञ

१. उदासपना रोगको परिचय (Introduction)

विभिन्न अवस्था वा कारणले हामी केही समयको लागि दिक्क हुन्छौं, निराश वा दुःखी हुन्छौं तर परिस्थितिबस् हामीबाट गुज्रने यस्ता अवस्थाहरू क्षणिक तथा सामान्य हुन् । हामी आफूलाई रोगी मान्दैनौं र यस्तो अनुभव गर्दैनौं । बरु हामीमध्ये धेरै मानिसहरू त्यस्ता अवस्थाको सामना गरी अगाडि बढ्छौं । कोही-कोही भने त्यस्तो अवस्थामा विचलित भई आफ्नो काम गर्न असमर्थ हुन पुग्छन् । उनीहरूको भोक, निद्रा हराउँछ । त्यसमा पनि प्रायःलाई विस्तारै सुधार हुँदै जान्छ । तर यदि लामो समयसम्म प्रभावित भई आफ्नो कार्य सम्पादन गर्न नसक्ने, उत्तरदायित्वको वेवास्ता गर्ने, भोक निद्रा गडबड हुन थालेमा यस्तो अवस्था असामान्य भएको बुझ्नु पर्दछ । अन्य शारीरिक अस्वस्थता जस्तै यो व्यक्तिको नियन्त्रणभन्दा बाहिरको अवस्था हो । उदासपनारोग (Depressive Disorder) मानव मस्तिष्कबाट सम्पन्न हुने सोचविचार, भावना, स्मरण, सामाजिक व्यवहार, बोली, अभिव्यक्ति वा रचना, योजना, निर्णय, अनुभूति वा आभास जस्ता उच्च मानसिक क्रियाकलापमा गडबडी आई हुने विभिन्न थरिका मानसिक रोगहरूमध्ये एक हो । यस रोगमा विशेष गरी भावना र अभिव्यक्ति (Mood and Affect) मा गडबडि हुने गर्दछ ।

२. रोगका चिन्ह तथा लक्षणहरू (Clinical features)

कम्तीमा दुई हप्ताको अवधिदेखि प्रायःजसो उदास वा दुःखित मनस्थिति हुनु, हलुका काम गर्दा पनि निकै थाकेको महसुस हुनु, कुनै पनि कुरामा चाख तथा खुसी नलाग्नु, दैनिक क्रियाकलापमा सुस्ती आउनु, कुनै कुरालाई ध्यान दिएर गर्न नसक्नु, आत्मग्लानी तथा भूत, भविष्य र वर्तमानप्रति नैराश्यताको भावना जागरित हुनु, खुसी हुनुपर्ने कुरामा पनि खुसी हुन नसक्नु, बाँच्नु बेकार छ भनेर आत्महत्याको विचार मनमा आइरहनु आदि मानसिक लक्षणहरूका साथसाथै खाना अरुचि हुनु वा बढी खानु, निद्रा कम या बढी लाग्नु, शरीरको तौल ज्यादै घट्नु वा बढ्नु, यौनइच्छामा कमी आउनु, जीउ, टाँउको तथा शरीरका विभिन्न अन्य भाग दुखेको अनुभव हुनु, महिलाहरूमा मासिकस्राव नियमित नहुनु आदि विभिन्न प्रकारका शारीरिक लक्षणहरू उदासपना रोगमा देखिन सक्दछन् । शारीरिक लक्षणहरूका कारणले गर्दा रोगीलाई शारीरिक रोग लोगेको छ भन्ने गलत सोचाइले गर्दा मानसिक विभागमा जँचाउनुको सट्टा अन्य विभागमा जँचाउन जानेहरूको संख्या पनि बढी नै छ ।

कडा खालको उदासपना रोगमा बिहानीपख बिरामी छिट्टै ब्यूँझने र उठ्नासाथ निकै नैराश्य र हीनभावनाले ग्रसित हुने, आत्महत्याको विचार तथा प्रयास हुने, म गरिब छु मेरो केही वा कोहि छैन, मेरो शरीर र विश्वकै अस्तित्व छैन भन्ने झुटो विश्वासले मनमा जरो गाड्ने, कसैले केही नभने पनि विभिन्न आवाजहरू कानमा सुनिने, एउटै स्थितिमा नबोली, नखाई, हलचल नगरीकन बसिरहने आदि विभिन्न लक्षणहरू पनि देखा पर्न सक्तछन् । यस्ता बिरामीको मानसिक स्थिति जाँच गर्दा निम्नलिखित अवस्था देखा पर्न सक्तछ । जस्तै : झोक्राएर तथा गहभरी आँसु लिएर र टोलाएर बस्ने, धेरैबेर सोधेको प्रश्नको जवाफ नदिने, शारीरिक सर सफाई तथा पहिरनमा ध्यान दिएको नदेखिने (जस्तै-कपाल नकोर्ने, दाह्री नफाल्ने, मैलो लुगा लगाउने आदि), दुःखित र हीनभावनाले ग्रस्त हुने, मनमा विभिन्न प्रकारक झूटा विश्वासले जरा गाड्ने, आत्महत्याको सोचाई आउने आदि । उदासपना रोगग्रस्तमध्ये झण्डै ४०% ले आत्महत्याको प्रयास गर्ने र १५ देखि २०% ले ज्यान गुमाउने देखिन्छ ।

३. रोगको मार (Epidemiology)

विश्व स्वास्थ्य संघको तथ्याङ्कको आधारमा हाल उदासपना रोग विश्वमा मानिसहरूलाई असक्त तुल्याउने रोगहरूको पक्तिमा चौथो स्थानमा पर्दछ र सन् २०२० सम्ममा यो रोग मुटुरोगपछिको दोश्रो स्थानमा पुग्ने अनुमान गरिएको छ । समुदायमा ५ देखि १० % जनमानसमा यो रोग देखा पर्ने तथ्य विभिन्न तथ्याङ्कबाट देखिन्छ । कारण यकिन नभएतापनि यो रोग पुरुषको तुलनामा महिलाहरूमा दोब्बर हुने देखिन्छ । वास्तवमा २० जना पुरुषमा १ जना र १० जना महिलामा १ जना कुनै पनि उमेरमा उदासिन रोगबाट पीडित हुने गरेको प्रायः सर्वेक्षणमा देखिन्छ ।

४. रोगको कारण (Etiology)

हाल चकित्साशास्त्रको बुझाइमा उदासपना रोग कुनै एक कारणबाट मात्र नभई, जैविक, मनोबैज्ञानिक र सामाजिक

तत्वहरूको मिश्रणबाट हुने गर्दछ । त्यसैले यसलाई Bio-psycho-social model बाट बुझ्ने गरिन्छ ।

यिनै तथ्यको आधारमा उदासपना रोगका मुख्य कारणहरू निम्न लिखित हुन सक्दछन् :

- विभिन्न कारणहरूले गर्दा मस्तिष्कमा विभिन्न स नायु रसायनहरू जस्तै - डोपामिन, सेरोटोनिन, नरएड्रेनालिन आदि (neurotransmitters like dopamine, serotonine, noradrenaline etc) तथा स्नायुकोषको विशेष भाग (receptors) आदि तत्वको क्रियाकलापमा कमी आएमा ।
- वंशाणुगत कारणले गर्दा । जस्तै - परिवारमा वा हाडनातामा यस्तै किसिमको रोग भएमा ।
- दीर्घकालसम्म कुनै तनाव रहिरहेमा जस्तै - जागिर नपाउनु, अनमेल विवाह हुनु, दम, बाथ, मधुमेह, उच्च रक्तचाप आदि दीर्घकालीन रोग हुनु ।
- लामो समय र धेरै तनावपूर्ण व्यक्तिगत, सामाजिक वा पारिवारिक वातावरण भइरहनु। जस्तै - घरमा सौहार्दपूर्ण वातावरण नभएमा ।
- एक्कासि कुनै अप्रत्याशित घटनाको सामना गर्नुपरेमा जस्तै - धनसम्पत्ति हराएमा वा नष्ट भएमा, जागिर खोसिएमा, निकट हितैषीको मृत्यु भएमा आदि ।
- गर्भवती तथा सुत्केरी अवस्थामा उदासपना तथा अन्य मानसिक रोग लाग्ने सम्भावना अरु बेलाभन्दा बढी हुन्छ ।
- सानै उमेरमा मातापिताको मृत्यु भएमा वा उनीहरूबाट छुट्टिनु परेमा ।
- उदासपनाका लक्षणहरू अन्य मानसिक रोगहरू (जस्तै सिजोफ्रेनिया, मादक पदार्थको कुलत, लागू औषधीको कुलत आदि) र विभिन्न शारीरिक रोगहरू (जस्तै - थायराइड, एड्रिनल, आदि ग्रन्थिको गडबडी) मा पनि देखा पर्न सक्तछ ।
- कुनैकुनै औषधीहरूको खराब असर (Adverse Effects) ले गर्दा पनि उदासपनाका लक्षणहरू देखिन्छन् । जस्तै - उच्च रक्तचापमा प्रयोग हुने रिसर्पिन, प्रोपानालोल, महिलाले खाने परिवार नियोजनको चक्की, विभिन्न रोगमा प्रयोग हुने कर्टिकोस्टेराइड्स आदि ।

जुनसुकै तत्त्व वा तत्त्वहरूको मिश्रणले भूमिका खेले तापनि अन्तत्त्वगत्वा मनमस्तिष्क तथा स्नायुहरूको कार्य सञ्चालन गर्ने विभिन्न स्नायुरसायनहरू (Neurotransmitters) तथा स नायुकोषको विशेष भाग (receptors)मा नै गड्बडि हुने देखिन्छ ।

५. रोगको उपचार (Treatment)

- साधारण खालको उदासपना रोगको उपचार अस्पतालको बहिरङ्ग विभागबाट नै गर्न सकिन्छ । तर कडा खालको रोग विशेष गरेर आत्महत्याको विचार गरेको वा प्रयास गरेको बिरामी, पानी, औषधी तथा खाना सेवन गर्न नमान्ने बिरामी, घर वा समाजबाट राम्रो सहयोग वा सहानुभूति नपाएका बिरामी, भन्दै नभनेको आवाज कानमा सुन्ने, झूटो विश्वास लिने बिरामी तथा सुत्केरी अवस्थामा देखा पर्ने कडा खालको बिरामीलाई अस्पतालमा भर्ना गरेर उपचार गर्नुपर्दछ ।
- उदासपना रोगको उपचार मुख्यतया तीन प्रकारले गर्न सकिन्छ :-

  (क) बिरामीलाई आवश्यक सरसल्लाह तथा सहयोग गरे (Psychotherapy),

  (ख) उदासपना बिरुद्ध काम गर्ने औषधीको सेवन गरेर (Antidepressants जस्तैः Amitriptyline, Nortriptyline,Imipramine, Fluoxetine, Sertraline, Mirtazepine, Venlafaxine आदि) र कहिलेकाहीँ Mood Stabilizers (जस्तैः Lithium, Sodium valproate, Lamotrigine आदि) र Antipsychotics (जस्तैः Olanzapine, Quetiapine आदि) समुहका औषधी प्रयोग गरेर र

  (ग) विद्युतीय उपचार पद्धति (Electro-Convulsive Therapy) प्रयोग गरेर ।

६. बिरामी र आफन्तले ध्यान दिनुपर्ने कुराहरू (Psychoeducation):

- यदि कोही मानिस लामो समयसम्म प्रायःजसो उदास वा दुःखी हुन्छ, रमाइलो लाग्ने कुरामा रमाउँदैन, कुनै शारीरिक रोग बिना पनि नानाथरि लक्षणहरूको शिकायत गर्छ, कम्जोर रहन्छ,उसको भोक, निन्द्रा,

वा यौन चाहनामा गडबडि हुन्छ, लोसे वा बेचैन देखिन्छ, बढी रुन्छ, रिसाउँछ, पीर गर्छ, नकारात्मक अभिव्यक्तिहरू दिन्छ भने यस्तो अवस्थामा उदासपना रोगको शँका गर्नु पर्छ र तुरुन्त उपचार गराउँनु पर्दछ । शिघ्र उपचार नै सफल उपचारको आधार हो ।

- कडा खालको रोगीले आत्महत्याको प्रयास गर्न सक्ने सम्भावना हुने हुँदा बिरामीलाई कडा निगरानीमा राख्नुपर्दछ ।
- कुनैकुनै औषधीले झुम्म पार्न सक्छ त्यसैले औषधी सेवन गरेको अवस्थामा सवारी तथा मेसिनरी सामान चलाउनु हुँदैन ।
- बिरामीले सबै औषधी एकै पटक खान सक्ने जोखिमबाट बच्न उसले नभेट्ने ठाउँमा औषधी राख्नुपर्दछ । त्यस्तै केटाकेटीहरूले नभेट्ने सुरक्षित ठाउँमा औषधी राख्नुपर्दछ ।
- नियमित रुपले जाँच गराएर नियमित औषधी सेवन गरेमा यो रोग निको हुन्छ । साधारणतया यस रोगका औषधीको सेवन छ महिनासम्म र कहिलेकाहीँ अझै लामो समयसम्म गर्नुपर्ने हुन्छ । त्यसैले आफूले खाने औषधीको नाम याद राख्ने, आफुसँग पर्याप्त औषधीको मात्रा राख्ने र औषधीलाई घरमा सुरक्षित स्थानमा राख्नु पर्दछ ।
- उदासपना रोगको औषधी अन्य शारीरिक रोग जस्तै - क्षयरोग, मधुमेह र उच्च रक्तचाप भएको रोगीले जसरी नियमित र लामो समय सेवन गर्न पर्ने हुन्छ । त्यसैले औषधी सेवनमा अनिमियतता/हेलचक्राइँ गरेमा रोग जटिल र अझ पछि उपचार गर्न नसकिने वा कुनै उपचार प्रभावकारी नहुने खतरा हुन्छ । त्यसैले शुरुवातको अवस्थामै चिकित्सकको सल्लाह बमोजिम उपचार गराउनु पर्दछ । चिकित्सकको सल्लाहबिना औषधीको मात्रा घटाउने, बढाउने वा औषधी खान छाड्न हुँदैन ।
- औषधी सेवन गर्दागर्दै पहिलेको भन्दा फरक खालको लक्षण देखा परेमा, औषधीले गर्दा डाबर आउने, जीउ चिलाउने आदि एलर्जी भएमा तथा बिरामी गर्भवती भएमा तुरुन्त चिकित्सकसँग सम्पर्क राख्नुपर्दछ ।
- औषधी सेवन गर्दागर्दै अन्य कुनै पनि शारीरिक रोग लागेर जँचाउनुपरेमा र अन्य औषधी सेवन गर्न परेमा आफूले खाइराखेको औषधीको विवरण सम्बन्धित चिकित्सकलाई देखाउनु पर्दछ । यसो गर्नाले दुबै रोगको उचित उपचार हुन्छ र औषधीहरूको दुष्परिणामबाट पनि बचिन्छ ।
- औषधी सेवन गर्दागर्दै बिरामीले मादक पदार्थ तथा अन्य कुनै लागु पदार्थको सेवन गर्नु हुँदैन ।
- औषधी सेवनको साथसाथै बिरामीलाई राम्रो पारिवारिक तथा सामाजिक स्नेह एवम् वातावरणको पनि आवश्यकता पर्दछ ।
- यस रोगबाट ग्रसित बिरामीले आफ्नो दिनचर्यालाई नियमित बनाउन अत्यन्त जरुरी र लाभदायक हुन्छ, जस्तै;
  - राती नियमित समयमा सुत्ने र बिहान ठिक समयमा उठ्ने जस्तै; ९ बजे देखि ५ बजेसम्म (9 P.M. to 5 A.M.) . वा आफूलाई सधै उपयूक्त हुने गरि नियमित कम्तिमा ६ देखि ८ घण्टासम्म सुत्ने बानि बसाल्ने ।
  - ६ देखि ८ घण्टाको निन्द्रा शरिरको दैनिक आवश्यकता हो । नियमित ६ घण्टा भन्दा कम र ८ घण्टा भन्दा ज्यादा सुत्नु यस रोगमा हानिकारक हुन सक्दछ ।
  - दिउँसो नसुत्नू नै हाम्रो सामाजिक परिपेक्षमा हितकर हुन्छ । त्यसैले राती नै पुरा निन्द्रा सुत्ने बानी सर्वोत्तम हुन्छ ।
  - सधै नियमित समयमा र पौष्टिक खाना खाने ।
  - नियमित कसरत गर्ने । यसको लागि बिहान २० मिनेट (वा २ देखि ३ किलोमिटर) हिड्नु सबै भन्दा सरल र उपयोगि उपाय हुन्छ । योगा, एरोबिक्स, मेदिटेसन आदि गर्नु पनि अन्य फाइदाजनक उपाय हुन् । तर यी मध्य जुनै उपाय रोजेपनि त्यस्मा नियमित हुनु पर्दछ ।
- सकेको काम गर्न तत्पर रहने र गर्न मेहनत गर्ने । मेहनतले जति काम गऱ्यो त्यसले रोगको सुधारमा मद्दत गर्ने हुन्छ । र यस रोगको पूर्ण सुधारका निमित्त यो अपरिहार्य हुन्छ अर्थात, "औषधीले नै हात खुट्टा चल्न पर्छ" , "मैले मेहनत किन गर्ने?" "काम गरेमा रोग बल्झने हो की?" भन्ने खालको मनस्थितिले उपचार पूर्ण हुन सक्तैन ।

७. व्याप्त गलत धारणाहरू (Myths & Facts)

आधुनिक चिकित्साशास्त्रले उदासपना रोग अन्य शारिरिक रोगहरू (जस्तै मधुमेह, उच्च रक्तचाप, दम आदि) सरह एउटा दीर्घकालिन रोग भएको पुष्टि गरिसकेता पनि हाम्रो समाजमा उदासपना रोगसम्बन्धी धेरै गलत धारणाहरू अझै व्याप्त छन्, जसले गर्दा यो रोगबाट पीडित व्यक्तिले अनाहकमा दुःख पाउँने गर्छन् । केही गलत धारणा र वास्तविकताहरूको यहाँ उल्लेख गरिएको छ :-

- उदासपना कुनै सरुवा रोग होइन ।
- उदासपना रोग हुनका लागि पिर-मर्का वा तनाब (tension,stress), हानिनोक्सानी (loss) जस्ता बाह्य कुराहरूको ठूलै भूमिका भएता पनि हुनै पर्छ भन्ने छैन । जीवनमा सब कुरा पुगेको धनीमानी, विवाहित जो कसैलाई पनि उदासपना रोग हुनसक्छ । बास्तवमा शरीरका अन्य कुनै अँगको रोग जस्तै यो पनि मस्तिष्कको रोग हो । उदासपना रोग बिभिन्न मनोबैज्ञानिक, सामाजिक, वातावरणीय र जैवीक कारणहरूबाट उत्पन्न भई मनोबैज्ञानिक र शारीरिक लक्षणका रुपमा प्रकट हुन्छ ।
- उदासपना रोग दैवीप्रकोप, डाइनी, भूतप्रेत, श्राप, बोक्सी, धामी वा जंगलीको कारणले नभइ मस्तिष्कमा सेरोटोनिन, डोपामिन जस्ता स्नायु रसायनको गडबडि भएर हुने रोग हो ।
- उदासपना रोग पश्चिमी औद्योगिक राष्ट्रहरूमा मात्र सीमित नभइ विश्वको जुनसुकै भूगोल, संस्कृति वा जातिका मानिसलाई सताउने प्रमुख रोगहरूमा पर्छ । विश्व स्वास्थ्य संगठनको हालसालै प्रकाशित एक प्रतिवेदन अनुसार, उदासपना रोग विश्वभरिमै दश प्रमुख रोगहरूको सूचीमा पर्दछ ।
- उदासपना रोग भएको व्यक्तिले मृत्यूको चाहना वा आत्महत्याको योजना ब्यक्त गर्छ भने उसले आफूलाई हानी पुऱ्याउने वा आत्महत्या गर्ने सम्भावना अत्यन्त प्रबल (४०% सम्म) हुन्छ । उदासपना रोगवाट ग्रसित १५ देखि २०% जतिले त आत्महत्या गरी मृत्यूबरण गर्दछन् । त्यसैले, यो स्थितिलाई बडो गम्भीरताका साथ लिनुपर्दछ ।
- उदासपना रोग भएको व्यक्तिसँग उसको समस्या र आत्महत्यासम्बन्धी कुरा गर्दा विरामीलाई प्रतिकूल असर पर्ला भन्ने डर प्रायःलाई हुन्छ । विरामीसित तरीका पुऱ्याएर यस्तो कुरा गर्दा यसरी सम्भाबना बढेको कुनै अध्ययनले देखाएको छैन । बरु विरामीले कुण्ठा ब्यक्त गर्न पाउँदा राहतको अनुभव गर्दछन् र यसले उसलाई मद्दत पुऱ्याउन सजिलो पनि हुन जान्छ ।
- जब कोहि उदास हुन्छ, थकान महशूस गर्छ वा कुनै कुरामा रमाउँदैन, उसलाई जाँड, रक्सी वा यस्तै मादक पदार्थ सेवन गर्न दिने चलने धेरै नै रहेको छ । यसले उदासपना रोगलाई फाइदा हुँदैन । उल्टो समस्या बढाइदिन्छ र अरु जटिलताहरू थपिन्छन् ।
- उदासपना रोग भएका मानिसलाई चरित्र बिग्रेको, मन कमजोर वा हुत्तिहारा भएको, वा यस्तै भनी हेय दृष्टिकोणले हेर्ने र हाँसोको विषय बनाउन हुँदैन । यो अवस्था रोगीले चाहेर हुने होइन । त्यसैले बिरामीलाई दोष दिनु अबुझपना मात्र हो । इच्छाशक्ति वा अरु यस्तै तरिकाले मात्र उदासपना रोग निको हुँदैन । त्यसैले दक्ष मानसिकरोग विशेषज्ञको निगरानीमा उपचार गराउनुपर्दछ ।
- एकपल्ट उदासपना रोग भएपछि जिन्दगिभर त्यस्तै रहन्छ र त्यस्ता बिरामीलाई जन्मभर निगरानी र रेखदेखमा रहनुपर्छ भन्ने बुझाइ पनि धेरैको हुन्छ । वास्तबमा उदासपना रोग निश्चित अवधिसम्म मात्र हुन्छ । आधुनिक चिकित्साशास्त्रले यस रोगको उपचार सफलताको साथ हुन सक्दछ । त्यसपछि ब्यक्ति सामान्य जीवनयापन गर्न सक्छ ।
- उदासपना रोगको उपचार थालेपछि कहिल्यै रोक्न सकिंदैन । यसमा बानी पर्छ । यसबाट पछि गएर नराम्रो वा प्रतिकूल असर हुन्छ । उपचार महङ्गो हुन्छ, आम मानिसको पहुँचभन्दा बाहिर हुन्छ भन्ने जस्ता अन्यौल पनि व्याप्त देखिन्छन् । वास्तबमा उदासपना रोगको औषधिमा बानी पर्दैन । उदासपना रोग दोहोरिएर हुनसक्ने भएकोले त्यसलाई रोक्न लामो समय औषधि सेवन गर्नुपर्ने भएतापनि निश्चित अबधिपछि विस्तारै रोक्न सकिन्छ । औषधिको प्रतिकूल असरको सवालमा, दक्ष चिकित्सकको निगरानीमा औषधीको हुनसक्ने प्रतिकूल असर कम गर्न सकिन्छ । कुनैपनि औषधिको प्रतिकूल असर हुन्छ नै । उदासपना रोगको औषधिको पनि केहि प्रतिकूल असर छन् तर उपचार

नगराउँदा हुने हानीभन्दा ती अति न्यून हुन्छन् । प्रायः ती गम्भीर प्रकृतिका पनि हुँदैनन् । उदासपना रोगको औषधी त्यती धेरै महङ्गो पनि हुँदैन ।

- उदासपना रोगको उपचार औषधिले मात्र हुन्छ भन्ने होइन । तर यो प्रमूख पद्धति भने अवश्य हो । हल्का खालको उदासपना रोगमा थरि थरि मनोबैज्ञानिक पद्धति पनि प्रभावकारी हुन्छन् । अति भयावह र डरलाग्दो रुपमा चित्रण गरिने विद्युतीय उपचार पद्धति (Electro-Convulsive Therapy) पनि अत्यन्त प्रभावकारी र सुरक्षित उपाय हो । कडा खालको उदासपना रोग, गर्भवती र वृद्ध अवस्थाको उदासपना रोगमा यो अति उपयुक्त हुन्छ । त्यसैले, चिकित्सक, आम जनता र सम्बन्धित सबै सचेत रही उदासपना रोगको पहिचान, उपचार, पुनर्स्थापन र रोकथाममा आ-आफ्नो भूमिका निभाउन सरिक हुनुपर्छ ।
- उदासपना रोग लागेको व्यक्तिको बुद्धि विकासमा कुनै असर परेको हुँदैन र सही अवसर पाएमा उनीहरूले अध्ययन गर्न सक्दछन्, काम गर्न सक्दछन्, र अरु सरह जीवनयापन गर्न सक्दछन् । इतिहासमा यस्ता धेरै हस्तिहरू छन् जस्ले उदासपना रोग लागेर पनि सफलताको शिखरसम्म पुगेका छन् ।
- उदासपना-रोग लागेको व्यक्तिले विवाह गर्न र सन्तानलाई जन्म दिन सक्दछन् ।
- उदासपना रोग लागेको व्यक्तिलाई त्यस्तै व्यवहार गर्नुपर्दछ जस्तो व्यवहार हामी मधुमेह, उच्च रक्तचाप या दम रोग लागेको रोगीसँग गर्दछौ । उनीहरूलाई ज्यादा सहानूभुति वा उपेक्षा पनि देखाउनु हुँदैन ।

८. उदासपना रोग जो-कसैलाई लाग्न सक्दछ (Nobody is immune to Depressive disorders)

यदि हामीले इतिहासका पानामा हेर्ने हौं भने धेरै महान हस्तिहरू यस रोगको शिकार भएको तथ्य भेटाउँछौं । यसबाट उदासपना रोग जो-कसैलाई पनि लाग्न सक्ने तथ्य प्रस्ट हुन्छ । यस रोगबाट कुनै जाति, धर्म, गरिब, धनी, महिला, पुरुष अछुतो रहन सक्दैनन् ।

तल उदासपना-रोगको शिकार भएका केही महान् हस्तिहरूको उल्लेख गरिएको छ :

- एन्थनी हप्किन्स (सिने कर्मी)
- बार्बरा बुश (अमेरिकन राष्ट्रपति पत्नी)
- बिली जाँएल (गायक,सँगितकार)
- एल्टन जाँन (गायक,सँगितकार)
- हेलि बेरि (सिने कर्मी)
- हेरिसन फोर्ड (सिने कर्मी)
- जिम केरि (सिने कर्मी,हाँस्य अभिनेता)
- जेनेट ज्याक्सन (गायीका,सँगितकार)
- मार्लन ब्रान्डो (सिने कर्मी)
- माँनिका सेलेस (टेनिस खेलाडी)
- स्टेफेन हाँकिन्स (वैज्ञानिक)
- जर्माइन ग्रिएर (लेखक)
- जेसिका ल्याङ्ग (सिने कर्मी)
- कार्ट काँबेन (गायक,सँगितकार)
- रोसीयँन (लेखीका, हाँस्य अभिनेत्री)
- पाँउल गेस्काँग्न (फुटबल खेलाडी)

नोटः यो लेख जनचेतनाको लागि लेखिएको हो । रोगको सही पहिचान र उपचार दक्ष चिकित्सकबाट गराउनु पर्दछ । नबुझेको कुराको जानकारी सम्बन्धित चिकित्सकबाट लिनु पर्दछ । तपाईंको रोग र उपचारबारे सम्पूर्ण जानकारी पाउन तपाईंले हिचकिचाउन हुँदैन ।

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An article is reviewed for publication assuming that its contents have not been submitted simultaneously to another journal, have not been accepted for publication elsewhere and have not already been published. Any attempt at dual publications will lead to automatic rejection and may prejudice acceptance of future submissions. Please submit with your manuscript copies of any other papers (published, in press, or submitted for consideration elesewhere) that relate to the same subject. It is essential that you submit any other publications or submissions that use the same data set to allow assessment of any potential overlap. Indicate on the title page whether the paper is based on a previous communication to a society or meeting. Articles and their illustrations become the property of the journal unless are reserved before publication.

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Following final approval of articles you must submit the accepted version together with details of the type of computer used, software and digital system. Do not jusity. Please send us digital versions of your figures, through email office@gmc.edu.np.

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Original articles should normally be in the format of under following heads Introductions, methodology, Result, Discuss, Conclusions, Referencess. Please provide a 200-word structured abstract. Lengthy manuscripts will be rut-Limed for shortening. The discussion in particular should be clear and concise and limited to matters arising directly from the results. Avoid discursive speculation. Randomized clinical trials should be clearly identified as such in the title and abstract.

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Use the decimal point, not a comma, for example 5.7. Use a space and not a comma after thousands and multiples thereof, for example 10 000. Use SI units (International System of Units) except for the measurement of blood pressure (mm Hg).

Statistics

For detailed guidence on the handling of statistical material consult Br J Slug 1991; 78:782-4. In evaluating a manuscript the Editors and statistical referees will consider the design of the study, the presentation and analysis of data and the inter-pretation of results.

Design

Set out clearly the objectives of the study, identify the primary and secondary hypotheses, the chosen end-points and justify the sample size. Investigators embarking on randomized controlled studies may wish to consider the CONSORT statement (JAMA 1996; 276: 637-9).

Presentation

Whenever possible use graphical presentation to illustrate the main findings of a study. The use of standard deviation and standard error should be clearly distinguished and presented in parentheses after the mean values.

Analysis

Clearly describe methods used for each analysis. Methods not in common usage should be referenced. Report results of statistical tests by stating the value of the test statistics, the number of degrees of freedom and the P value. Actual P values should be reported to two decimal places, especially when the result is not significant. The results of the primary analyses should be reported using confidence intervals instead of, or in addition to P values.

Interpretation

Take great care in. your interpretations. Do not place Undue emphasis on secondary analyses.

References

Type the refernces with double spacing in the Vancouver style (see Preparation of manuscripts). Reference to abstracts and personal communications is discouraged. Reference to Unpublished communications will not be accepted.

In the text, number references consecutively by superscript1: or1-3. References cited only in tables or figures should be numbered in sequence.

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Prof. Digvijay S Timilsina
Editor in Chief
Journal of Gandaki Medical College (GMC)
Sanchaya Kosh Bhawan
Prithwichowk, Nayabazaar
Pokhara-9, Nepal
Email: office@gmc.edu.np
Fax: +977-61-550254
Tel: +977-61-201130, 538595 Ext 132
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