CHAPTER 71

Medical Errors in Day-To-Day Practice

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"There are men and classes of men that stand above the common, herd; the soldier, the sailor and the shepherd not frequently; the artist rarely; rarer still the clergyman; the physician almost as a rule, he is the flower of our civilisation"

Robert Louis Stevens, 1887

INTRODUCTION

Medical profession, the noblest profession is suddenly facing threats and challenges on daily basis. Violence at work place has become a routine affair in our country. Today's aggressive journalism doing "public trials" in electronic media has done more harm than good to this profession. The Indian society off late has become intolerant to the doctors and hospitals and expect miracles to happen every day. Unfortunately doctors do not find any support from any corner. All are eager to find fault in the working pattern of doctors. Medical profession considered once as divine next to God often finds itself in bad reputation in recent times due to multiple factors including medical errors. Outcome of patient -physician encounter may be good but may go worse at times. Bad outcomes in medical practice are caught,dramatized and celebrated by lay press worldwide, especially in India worsening patient perceptions about physicians.

Medical error or injury has been known since the time of Hippocrates as principle of *primum non nocere* the popular axiomwhich translates to "First, do no harm."In a pioneering work by Schimmel on "Hazards of hospitalization," medical errors were presumed as "noxious episodes" in patient care and stressed on documentation of such episodes to determine its total incidence and impact.[1]

Definition

Medical error is defined by Institute of medicine as the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim.

The problem

In the landmark institute of medicine report, which triggered widespread discussion in 1999, estimated that least 44,000 people and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented.[2]

Makary Martin et al in 2016 examined medical errors as the 3rd leading cause of mortality in United States just behind cardiovascular disease and cancer mortality leading to 2,51,454 deaths. They relied on four studies to find the mortality related medical errors which involved more than 37 million patients. Medical error is not included on death certificates or in rankings of cause of death. Hence often not accounted properly.[3]

Patient may suffer injury or will be put to high risk of injury which may range from trivial to life threatening damage. Damage may result in prolonged hospital stay or disability or long lasting psychologic distress. Society also bears the brunt of medical error like loss of productive work, escalating health care costs, school absenteeism, creating lacunae in physician-patient relationship, physician mistrust and doctor shopping. For the health care provider it may lead to frustration, feeling of inability to treat, fear of shaming or losing the practice.

Adverse event is a close term. An adverse event is an unintended injury to patients caused by medical management (rather than the underlying condition of the patient).[4]

Medical negligence is the failure to meet the standard of practice of an average qualified physician practicing in the specialty in question. It occurs not merely when there is an error, but when the degree of error exceeds the accepted norm.

CLASSIFICATION OF MEDICAL ERRORS

Medical error may be classified as errors in diagnosis, treatment, prevention, follow up and miscellaneous.[5]

Diagnostic errors

1. Error or delay in diagnosis.

   eg- considering and treating anemia as a disease; anemia is a sign of an underlying condition but not a diagnosis by itself.[6]

2. Failure to employ indicated tests.

   eg- failure to do ECG for diagnosing acute myocardial infarction.

3. Use of outmoded tests or therapy.

   eg- applying tourniquet, cryotherapy and electrocautery to snake bitten limb.

4. Failure to act on results of monitoring or testing.

   eg- Not reducing insulin dosage in diabetic patient with low blood sugars.

Treatment errors

1. Error in the performance of an operation, procedure, or test.

eg- not accounting for false positive rates of test like RA factor or Widal test.

2. Error in administering the treatment

   eg- Administration of a drug that has expired.

3. Error in the dose or method of using a drug

   eg- Giving IV drug where subcutaneous route is indicated.

4. Avoidable delay in treatment or in responding to an abnormal test

   eg- Not acting quickly in the golden hours of ischemic stroke even though when thrombolytic facility is available.

5. Inappropriate (not indicated) care

   eg- Using anticoagulation when not indicated

Preventive errors

1. Failure to provide prophylactic treatment

   eg- Not following ABCD in diabetic patient management- A1c, blood pressure, cholesterol and diabetic education.[7]

2. Inadequate monitoring or follow-up of treatment

   eg- Failure to screen for complications like acute kidney injury in snakebite, renal dysfunction in a long standing hypertensive patient.

Others

1. Failure of communication

   eg- misinterpretation of Amlopress-AT to Amlopress-80 resulting in hypotension in a hypertensive patient or mistaking 60 units for 6 units of Insulin in a prescription – inj plain insulin 6u sc in a hand written format.

2. Equipment failure

   eg- Poor performance or lack of calibration of machines resulting in wrong reports.

3. Other system failure

   eg- Lack of proper referral system for adequate and comprehensive care.

SPECIAL SITUATIONS

Intensive care setting

Medical errors in intensive care units will have a greater impact on mortality. Multiple underlying co-morbidities, multi organ dysfunctions, life sustaining treatments, use of narrow therapeutic window drugs and usage of high end technologies make critically ill patients more susceptible for error. Hence there are higher chances of medical sentences of medical error or judgements in the ICU set up. Medical errors should not be considered as medical negligence in the emergency situations as life saving procedure and treatment is more important than detailed history or detailed clinical examination. Lot of confusion prevail in the emergency room treatment even for diagnosis in the absence of emergency investigations, eg-Bronchial asthma v/s Cardiac Asthma, Ischemic stroke v/s Hemorrhagic stroke in the absence of CT brain, treating acute fever & chills with anti-malarials in the absence of blood tests.

In IATROREF Study, the five most common adverse events were errors in administering medications (vasoactive drugs and insulin) and events related to mechanical ventilation (unplanned extubation, overinflation of intubation catheter balloon, and failure to place the patient in the semi recumbent position).This study also showed having more than two adverse events was an independent risk factor for ICU mortality.[8]

PREGNANCY

Pregnancy is regarded as a part of healthy life and not disease process. Maternal deaths are audited by governments and it is considered as an yardstick of progression of health care of the society. Errors in maternal care should be assessed and self evaluated for betterment of maternal and child care and safe pregnancy.[9]

POLYPHARMACY

Technically more than one drug can attract drug interaction and it's risky to prescribe multiple drugs to a single patient. Unfortunately the number of drugs prescribed increases especially in the elderly patients due to multiple co-morbid conditions. The Bostop collaborative surveillance study has reported 6% of adverse drug reaction (ADR) in its 9,900 patients of its 83,000 exposures. As medication errors are a part of measure source of medical errors and it is practically impossible to remember all significant drug interactions, it is advised to have special care in prescribing certain drugs like anti-coagulants , anti epileptics, antibiotics, anti cancer drugs etc.,

RESEARCH

Various errors may occur in different phases of medical research. Mistakes are usually made during the design phase; but may also be made during the data collection, analysis or manuscript preparation phases.[10]

CAUSES OF MEDICAL ERRORS

Human factors

Cause for human error, is due to a failure of achieving the intended outcome in a planned sequence of mental or physical activities when that failure is not due to a chance. According to Reason, human errors are divided into two major categories: (A) slips that result from the incorrect execution of a correct action sequence and (B) mistakes that result from the correct execution of an incorrect action sequence.[11]

Ergonomics: Night shift and extended work duration may affect performance.Being awake for over 24 hours caused interns to double or triple the number of preventable medical errors, including those that resulted in injury or death.[12]

Advancing complexity of health care system

Knowledge,training and competency issues.[13]

Table 1: Some common errors and preventive tools

Error	Prevention
Sponge /instrument left off in surgical site	Regular sponge/ instrument count
Drug reactions	Allergic testing, documenting,labelling records and patient arm bracelet
Bed sores	Adequate nursing care and nutrition
Misspelling error	Using computerized prescription,bold capital letters
Multiple prescriptions from various specialities	To be approved by the primary consultant
Wrong side limb amputation	Marking surgical site involving patient ,double cross checking
Polypharmacy with drug interactions	Common drug interaction charts to be displayed
Errors in critical care	Protocol based management

Equipment errors

Communication failures

Overexpectation by the patient and attendants or expecting from treating doctor which some other person has promised.

PROBLEMS OF SPECIALIZATION

Specialist consultations came into existence after 1960s from general practice. New technologies, inventions, procedures, diagnostic techniques, better understanding of pathophysiology of disease processes, newer drugs, hospital facilities have led pathway for sub specialization and super specialization. Many hospitals are opened for organ based management than patient centric approach. Patients often get confused where to go in the middle of plenty of options for eg; pregnant female visiting an ENT clinic for labor pains just because it is near to her home or to a question of who should admit a patient with hypertension, diabetes, ischemic heart disease, atrial fibrillation now with stroke and acute kidney injury?

Disclosure of medical error

Disclosure of medical error to patient is often considered as a double edged sword. Sharing of trust is prime in disclosing errors. But in a study by Mazor et al 88.8% wanted full disclosure, 83% favoured financial compensation and even then, upto 47% of patients would still seek legal advice with a view of filing a lawsuit.[14]

Practice of defensive medicine

Defensive medicine is departing from normal medical practice to safeguard health care provider from litigation. Save your skin before you save others has become today's mantra. Asking for battery of investigations even for small problem has become a routine affair so that a physician do not want to miss the rare possibility-eg; asking for CT Brain for all headaches. It not only increases health care costs but also pose health risks to the patient and spoil doctor-patient relationship.[15] Unfortunately doctors are clubbed under service providers along with traders, barbers, bankers and building contractors under consumer protection act in India. The consequence of loss related to medical negligence, medical errors and consumer court have led to the practice of defensive medicine.

Preventing errors (Table 1)

1. National level agenda and focus to enhance safe medical practice through leadership, research, tools and protocols.
2. Developing an integrated system for reporting of errors which includes voluntary as well as mandatory reporting system through health care delivery system both public and private.
3. Implementing safe practices at the delivery level.
4. Raising performance standards and expectations for improvements in safety.
5. Avoiding blame shaming for encouraging voluntary reporting.
6. Adequate legal protection for the profession to avoid defensive medicine practice.
7. Reporting near misses (i.e., an event/occurrence where harm to the patient was avoided), which can occur 300 times more frequently than adverse events, can provide invaluable information for proactively reducing errors.
8. Inclusion of ethics of reporting medical error in medical curriculum.
9. Anonymous reporting and a feedback system for medical errors will be useful without risk of career compromise or litigation fear.
10. Periodic medical, surgical audits and intra departmental mortality meetings maintaining anonymity and professionalism, should be encouraged.
11. All hospitals and institutions should form a special enquiry committee to decide on the medical errors and rectify within such environment.
12. Consultants or treating doctors should not be given responsibility of day to day affairs of hospital administration(drug procurement, bed availability etc).
13. Professionals mainly non doctor administrators should look after non clinical part of patient management issues like getting investigations done/ arranging blood for transfusions, arrangement to transfer a patient to ICU, providing an ambulance to shift the patient to other hospitals etc.
14. Multidisciplinary team meeting to decide and

plan in patient care for multi organ diseases/ emergencies/multiple co-morbid conditions.

15. Active participation in patient safety education programs by physicians.[16,17]

CONCLUSION

Patient centric management is very important. Patient's wellbeing is more important than mere diagnosis and treatment, especially in an emergency situation. At every step patient and his/herrelatives should be given all options (both diagnostic and therapeutic) to decide the plan for most appropriate management and this increases the participation of all. Efforts should be made for smooth management as physicians have a responsibility for the patient in particular and to the society in general.

Up to 95 % of physicians have reported being witnessed to a medical error. And 61 % of health care professionals actually believe that errors are routine part of medical practice.[18] "To err is Human " but to maintain the honour and noble traditions of medical profession continous efforts are needed to minimize medical error. All doctors are encouraged to accept, discuss and learn from the past medical errors. In my opinion, establishment of department of Trauma & Emergency at every major Hospital/Institution will help to manage the emergency cases more urgently, efficiently, especially in the golden time.

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