

Biosafety in everyday practice: an ethical view point

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Introduction

One of the cardinal principles of medical practice' is '*primum non nocere*'. This concept of 'first do no harm' applies to oneself as to one's patients or colleagues. Only a doctor who takes good care of his or her health can take good care of his or her patients. Yet, in India, safety and protection in a health care environment is one of the most neglected aspects of training and administration. Some times when a friend or a colleague falls sick due to accidental exposure we get a warning, but soon this episode is forgotten and the careless attitude returns.

A simple problem

Let me begin by citing a simple problem. When I was a MBBS student, my anatomy lecturer had reprimanded me for leaving my white coat unbuttoned. He explained with sarcasm that the apron buttons are there to protect me and my clothes. Over the years I have realised a paradox peculiar to India. Medical students, nurses, laboratory technicians and attendants, whose hands are most vulnerable to accidental splashes are issued or permitted only to wear a half sleeved apron. On the other hand the consultants who are least at risk wear long sleeved aprons, thus reducing the importance of the protective white coat to a status symbol. Compare this to my experience in London where I mistook a group of meat workers wearing long white aprons at the Smithfield meat market to be doctors from the adjacent St. Bartholomew's hospital.

Negligence is a way of life

In India the day to day struggle for a living has relegated the safety and accident protection norms to irrelevance. Believe it or not, it is a fact that total deaths from accidents are three times higher than deaths due to cancer in India. This should not surprise us who are familiar with improper electrical fittings, jumping in and out of moving vehicles, hanging on to overcrowded vehicles, or eating and drinking from unsafe places. This list is endless. The net result is that every day we shuttle to and fro between safety and danger, and carelessness has become a way of life. Accidents happen and are soon forgotten as life must go on. Every one complains about accidents, but no one does anything about it. Unfortunately this careless attitude is carried down to everyday practice where danger lurks in many hidden forms such as hepatitis-B or human immunodeficiency virus (HIV) carriers. This attitude ultimately leads to neglect of

patients safety. Few years ago a national survey of fiberoptic endoscope disinfection revealed shocking results. Only one third of those who responded to the survey were disinfecting the endoscopes.¹

Whose responsibility is it?

As a fresh junior resident in medicine I was asked to participate in an investigation on epidemic outbreak of fatal encephalitis of unknown etiology in Goa.² I went about collecting blood and tissue specimens and even performed post mortem brain biopsies without any personal protection. None of the senior investigators warned me of risks I could be exposed to and no suggestions given about what precautions I must take to protect myself. All went well till rabies virus was isolated from one of the brain biopsy I had performed. I was advised to take post-exposure vaccination against rabies, which in those days comprised of 10 injections on the abdominal wall of a neuronal derived vaccine that carried high complication rates. As time was precious, I was forced to buy the human diploid vaccine which had just been introduced in India at an exorbitant price of Rs.1500 per dose (equal to one month's salary). Following my desperate act, my employer reimbursed the cost of six doses and also procured the diploid cell vaccine for 20 other staff members who had handled the patient with rabies encephalitis.

This experience of mine raises an important ethical question on who is responsible for protecting the staff and students. I believe that this responsibility must be shared by the employee and the employer. A healthy understanding between the employer and employee is the key to success. Unfortunately most new entrants to the medical or para medical professions are blissfully ignorant of their risks until one of their friends falls ill. Furthermore, there are no orientation classes on biohazard, biosafety or protection for new entrants in health care occupations. Biosafety can be achieved by many means. First, every one at risk must be educated adequately about the source of risks and how to protect and prevent accidental exposures. The least we could do is to have booklets issued to all new entrants on various aspects of biosafety.³ Having a biosafety week for the staff and student is another way to increase the awareness of the risks. Second, all those at risk must be provided a full sleeved long apron which must be worn compulsory at the work place. Furthermore, protective equipment such as masks, gloves, goggles, lead aprons, etc must be provided and their usage made mandatory. Third,

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specific instructions or warning should be displayed at important areas. Fourth, many students of medicine, nursing and laboratory technology are often minors and their parents or guardians must be informed about the risks at work place. One final option is group insurance against accidents at the work place as followed in Indian industries.

The need for universal precautions

As a clinical gastroenterologist I see many medical and para medical personnel who are victims of viral hepatitis caused due to accidental exposure. With the seroprevalence rate of HIV infection raising rapidly in Mumbai and India, it won't be long before we see many colleagues getting infected with HIV if adequate precautions are not taken. Hepatitis B can easily be prevented by administering 3 doses of vaccine which costs less than 900 rupees. Unfortunately only few hospitals provide free vaccination to the permanent employees. Welfare of medical, nursing or laboratory students are excluded from the institutions' responsibility. It should be emphasised that the vaccination against hepatitis-B should actually be targeted at persons joining as students of medicine, nursing or laboratory sciences and not after 5 or 10 years when they become permanent staff. If the employers do not have the financial capability, they should at least provide guidance on the importance of vaccination to the new entrants. Bulk purchase of vaccine or partial subsidy are other options for hepatitis B vaccination. This will also reduce the drop-out rate, which is a problem with free vaccination programmes.

In order to prevent HIV and other blood-borne infections the universal precautions have to be enforced. This is based on the simple fact that any symptomatic or asymptomatic patient may be infected with pathogens and is a potential source for accidental exposure. Although the recommendations are reasonable and practical, their acceptance by health care workers is far from satisfactory. One of the problems is that inexperienced personnel such as students and interns are not educated at the beginning of their careers and become cavalier about the risks from an accidental exposure by the time they become consultants. In the United States the Centers for Disease Control (CDC) has stated that the responsibility of ensuring compliance with universal precautions lies with the health care employer rather than the individual employee. The employers must provide orientation, training, and continuing education for all health care workers. Employers must provide adequate

supplies of barrier devices, and are also expected to develop ways of dealing with non compliant employees including appropriate disciplinary action. I wonder whether these are realistic in India where resources are scarce and where the length of the apron sleeve determines your status.

Health worker as a carrier

One real sensitive ethical issue in everyday practice is what to do if a health worker becomes a carrier of an infection such as hepatitis-B or HIV due to accidental exposure. In many western countries the guidelines for periodic testing of employees who may pose risk to patients are well established. In India we neither have a policy for screening our staff nor do we have guidelines on what to do if someone is a carrier. Consider a not so uncommon situation of a resident surgeon getting infected with hepatitis B virus by accidental exposure at the work place and then becoming a chronic carrier. Should he be permitted to practise surgery where he will pose risk to patients? Paradoxically, there are no checks on those in private practice without institutional attachments.

Safety must come first

Three important rules I follow in every day practice are; i) don't take unnecessary chances, ii) there is no right way to do wrong things and iii) because nothing goes wrong everything is not alright. These rules are universally applicable for safety in every day life. Let me elaborate further. First, we all must realise that there is a real risk and danger at the work place and hence not take a foolhardy stance. Second, accidental exposure can occur in many ways and is often unpredictable. Third, because we have not got hurt in last 10 or 15 years doesn't mean that we won't get hurt in the future. The first seroconversion among health care workers has already occurred in India and the true extent remains unrecognised. It is therefore imperative that the concerned authorities take immediate actions so that all hospitals, clinics and private practice areas are able to follow minimum essential biosafety practices.

References

1. Arora A, Seth S, Tandon RK: Gastrointestinal endoscope disinfection practise in India: results of a national survey. *Indian Journal of Gastroenterology* 1992; 11:62-4.
2. Sharma NGK, Dubashi NG, Mohandas KM, Pereira P: Clinical profile of the Japanese encephalitis epidemics in Goa in 1982-83. *Journal of Association of Physicians of India* 1985;33:767-71.
3. Pavri K: *Standard biosafety guidelines*. Centre for AIDS research and control. New Delhi: ICMR 1991.

From the World Wide Web...

Placebos by definition require deception, albeit altruistic. What may matter (to some people) is what the doctor tells the patient e.g. the patient may be told that they are being given a specific drug when in actuality they are being given a 'dummy pill'. Alternatively, they may be told to 'take a tablet which will do them good'.

It is often claimed that the placebo effect is responsible for 30% or more of the effectiveness of such standard treatments as antibiotics for infection, anti-depressants for depression, analgesics for pain control, etc. Is there an ethical mandate to inform patients of this medical opinion? If we don't, are we being deceptive?

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