Health Care Providers and Hospital Acquired Infections

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With the advancement in health care technologies, the quality and the quantity of the health service have improved a lot. At the same time the Health Care Providers such as doctors, nurses, technicians etc. are more and more exposed to the professional hazards due to working environment of the hospital. The common biological hazards/ risks which may occur to Health Care Providers (HCP) in a hospital, are hospital acquired infections such as HIV/AIDS, Hepatitis B and C (HB, HC), Urinary Tract Infection (UTI), Respiratory Tract Infection (RTI) etc.

Health Care Providers (HCP) are most exposed to the professional biological hazards such as hospital acquired infection (very common are Hepatitis B & C and HIV infection) due to close contact with the patients or by product of the human body such as blood and body fluids. It is very difficult to prove the attributability if any employee is found positive with these infections unless the accident (any exposure of HCP) with blood or body fluid of any type of patient is reported timely. There are chances that the employee would have developed the infection from other source but not from the hospital, which he/she may deny. It becomes the responsibility of the hospital to protect the employees from these hazards by providing suitable working environment and at the same time the employees are equally responsible to protect themselves from the hazard by adopting the measures of prevention.

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Approximately 5.6 million cases of HIV positive and 110000 cases of AIDS have been registered so far. There was an assumption that by the end of year 2005, there may be 6 million HIV positive cases in India. On the other hand, in some of the developed countries, a definite declining trend has started possibly due to community awareness as a result of education and also strict adherence to universal precautions and blood bank policies by the health care authorities.

While treating a patient suffering from HIV infection there is a risk of transmission of the disease from patient to Health Care Providers through contact. Needle pricks in the fingers of Health Care Providers is the most common mode for transmission of HIV. Solid needles i.e. suture needles usually do not carry the amount of blood required for transmission of HIV infections and most transmissions occur through hollow needles i.e. hypodermic needles. Studies indicate that the risk of sero conversion after exposure to the HIV is less than 1% but risk of Hepatitis B virus (HBV) infection is significantly higher with the incidence of sero conversion after accidental exposure ranging from 12- 27%. Despite the fact that the risk of transmission of HBV is much more than HIV, not only the community but also the Health Care Providers are scared of HIV.

A WHO publication in 1999 indicated the injury rate from sharp as Nurse 44%, other worker 40%, waste handler 5%, in physician & dentist 4% and emergency medical personnel 7.5%. Needle stick injury (NSI) is the commonest sharp injury in the hospitals. A study conducted at Lucknow (March – April 2007) has shown that approx. 43% staff nurses have suffered with NSI during their profession. In another study of WHO, it has been estimated that approx. 12 billion injections are used per annum. Out of these 95% are for therapeutic use. The estimate total burden of infection per annum attributable to unsafe injection practices is 8 -16 million, Hep. B 2 – 4.5 million Hep. C and 75000-150000 HIV cases. The estimated annual death due to unsafe injection practice is approx. 1.3 million. The main reason of these attributes are lack of awareness of risk, lack of syringe and needle supplies leading to syringe and needle reuse, lack of safe disposal of infrastructure and over use of therapeutic injection.

Legal and ethical aspects are involved while dealing with risk specially hospital acquired infections. The life of the employee is associated with such conditions for which she/ he

may pose the responsibility on hospital. It has been observed that the HCP was exposed to the Hospital Acquired Infection while working in a particular organization and neither adopted the universal precaution nor reported any accident of exposure, but now posing the responsibility on the organization when the disease(s) crops up. Certain type of Hospital Acquired Infection e.g. HIV/ HB have many other sources of the transmission other than coming into contact with the patient. Unless the accident is reported properly, the responsibility cannot be fixed. In view of the above, it is imperative to consider the following :

- Responsibility and accountability of the employer towards its employees
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- Standard practices to be followed by HCP to prevent the occurrence of such hospital hazard/risk
- Legal & ethical responsibility of the employer to keep secret or disclose such risks.
- Professional risk liability and compensation in case the responsibility is proved

In addition to above, the financial issues are very dominant as huge amount is incurred in the treatment of HIV/AIDS and the disease is ultimately fatal.

There are many queries which have no answer so far. But certain things are very clear which can be applied in the health care organizations without any cost. In view of prevalence of HIV infection (0.8%) in healthy person, the concept of universal precaution is an emerging applicable issue and is based on the principle that blood or any type of fluid coming out from healthy or unhealthy person is assumed to be infective. It is not practically possible nor allowed by law to test every body for infection like HIV/ Hepatitis B. Therefore, it is better to take precautions, which prevent transmission of disease by avoiding the contact with body fluid. These are universal precautions.

Universal precautions are the general measures developed by CDC Atlanta (Center for the Disease Control – USA) and recommended by WHO to minimize the risk of infection from blood born pathogens including HIV infection in Health Care Providers. If these measures are adopted by the HCP, the chances of transmission of HIV/ HB are very remote. These measures are to be adopted by all HCPs while dealing with any type of patients (not only with HIV/ AIDS/HB).

Although all Health Care Providers are exposed to these diseases, workers engaged in the following areas are potentially at high risk:

- Blood transfusion unit
- Intensive care unit
- Dialysis
- Medical laboratories
- Operation theatre
- Microbiology
- Dissection room
- Ward for infected patients
- Sterilization and disinfections room

The precautions are as follows:

- Use of Barrier Precautions - such as gloves, face mask, apron, goggle etc.
- Hand & skin washing before and after use, preferably with running tap water and soap.
- Prevent injury which will further prevent transmission of disease.
- Adequate resuscitation devices – disposable type.
- Beware of your own skin – do not deal if any laceration or wound is present.
- Sterilization of the equipment, linen and other appliances.
- Effective biomedical waste management in the hospital.
- Caution to pregnant women.
- Notification of Health Care Providers who are exposed accidentally.
- Information & training of the HCP by KAP method.

In order to protect Health Care Providers, the hospital authorities must provide general information focusing on danger to be faced in practices; the ways and means of transmission of AIDS and must give general training with mass awareness to the hospital staff. It can be concluded that hospital staff and authorities are equally responsible and accountable for transmission of these hospital- acquired infections. Legally, a hospital is bound to provide such facilities to its staff which prevent the transmission, but the staff is also equally responsible. Professional risk liabilities and compensation is another controversial issue, which is very difficult to prove in the event of detection of positive cases as attributability is not exactly established due to many other modes of transmission of these diseases. The only answer for many questions is "Universal Precautions'. ■