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## Esoteric infections and anaesthesiologist: Need for self protection

Infections and epidemics have been documented throughout history. Improvements in infection detection, antimicrobial therapy and evidence-based practices of prevention have played a big role in reducing the scourge. Some infections are eliminated, some are under control, some new ones are emerging and some are re-emerging. Some hitherto 'innocuous' microbes have started acquiring 'infectivity'. Being intimately associated with patient care in the operating theatre and critical care units, the anaesthesiologist is always at risk of contamination. He has to keep himself abreast of the developments related to infectious diseases.

In routine practice, contamination is blood borne or air borne; at least 20 different pathogens are transmitted by needlestick and sharps injuries, including Hepatitis B Virus (HBV), Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV).<sup>[1]</sup> Influenza and tuberculosis are some of the airborne infections. Of the routine infections, more than 90% of the percutaneous infections occur in healthcare workers (HCWs) in developing countries.<sup>[2]</sup> There have been five documented cases of HIV infection after occupational exposure in the UK (as of November 2008) as per the Health Protection Agency (HPA) report.<sup>[3]</sup> Effective strategies for protection of HCWs against these infections are available such as universal precautions, immunisation against hepatitis B and influenza, provision of personal protective equipment (PPE) and post-exposure management.<sup>[2,4]</sup>

The re-emergence of some infections and appearance of new ones have resulted in major mortalities in recent years. Infections confined to one geographical location for centuries/decades have been detected in other areas, due to widespread travel of the population and transportation of food items, sometimes reaching

pandemic proportions (H1N1 virus). Some have been zoonoses and many viruses are yet to be characterised.

Among the infections that emerged/re-emerged in the last two decades are Swine Flu (H1N1virus), Bovine spongiform encephalopathy (BSE), severe acute respiratory syndrome (corona virus), plague, scrub typhus and others. Swine Flu pandemic was declared over officially in August 2010 by the World Health Organization, but many HCWs were affected and deaths of atleast four nurses was reported during the 2009 H1N1 influenza attack.<sup>[5]</sup> BSE (Mad cow disease), an epizootic is transmitted to human beings by eating food contaminated with tissues of infected carcasses. Severe acute respiratory syndrome (SARS) was first detected in southern China in late 2002 and later in South-East Asia and subsequently killed more than 770 people and infected over 8,000 worldwide, including HCWs who got infected during patient care. Ventilatory care was needed for associated pneumonia and respiratory failure. Recent reports in the media of outbreaks of influenza A (H7N9) bird flu virus in China and possibly, the first human deaths have caught the attention of healthcare professionals world-wide once again. No vaccine is currently available for human use against this infection.

For airborne infections, in addition to universal precautions, infection control measures for inpatients should include isolation room with negative pressure relative to the surrounding area, use of filtering face piece 3 (FFP3) filtering masks, contact precautions, eye protection for all patient contacts, hypochlorite for environmental decontamination of areas where the patient or the suspect hails from or is housed.<sup>[6]</sup>

Absence or lack of diagnostic tests for some diseases makes it difficult for the HCWs to take timely precautions

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and prophylactic measures to avoid getting infected. HCWs also need to be on guard against biological agents in the form of Anthrax, Plague, Ebola, Botulinum, etc., especially because of the covert nature of the operations and delay in recognition. Anthrax has been used for terrorist attacks and anthrax dissemination by post has been a concern. The last dengue epidemic started in India in 1996 with the haemorrhagic form needing intensive care management. The potential for infection of the HCWs is always present.

Scrub typhus has seen a resurgence in recent years in north, eastern and southern rural India with increased morbidity and mortality.<sup>[7]</sup> Variation in antigenicity of the bacteria in different locations of scrub typhus has so far resulted in no effective vaccination. Specific antibiotics can cure the disease and the typical black scars can help in diagnosis, but high index of suspicion needs to be maintained and diagnosis confirmed by laboratory tests. Only some tertiary centres undertake Immunofluorescence assay (IFA) (test of choice) apart from Weil Felix test. Involvement of the central nervous system is increasingly seen in scrub typhus with neck stiffness, neurologic weakness, seizures, delirium and coma; anaesthesiologists have a major role in neurological and cardio respiratory support to reduce the risk of death.

*In doing what we ought we deserve no praise, because it is our duty* (Joseph Addison, Cato).

However, service and self-protection should go hand in hand and the anaesthesiologists and HCWs have the right to protect themselves, specifically against the newer threats. Centers for Disease Control (CDC)

recommendations include setting up of specific infection control programmes, advance preparation and training of health care workers, apart from the usual guidelines such as frequent hand washing and use of PPE for these outbreaks.<sup>[2]</sup> Post infection care programmes for HCWs must be put in place in all work places, including withdrawal from duties; the HCWs can themselves be the sources of infection to patients.

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