POST-EXPOSURE PROPHYLAXIS FOR HIV INFECTION – NOTES FOR MEDICAL STUDENTS

HIV is one of a number of viruses which may be transmitted by accidental exposure to blood via a needlestick injury. There are currently about 40 million HIV infected people in the world; many are in sub-Saharan Africa, south-east Asia, India and parts of South America. Anti-HIV drug treatment has greatly improved the prognosis but the treatment can cause side effects. In addition, a person who is HIV positive is not permitted to practice certain branches of clinical medicine/surgery. The basic message is “Do not get infected”.

Risk of HIV infection

Blood and sexual contact are by far the most potent sources of infection. Unless visibly blood-stained, urine and saliva are not thought to carry an infectious risk. There is an increased risk of sharp injury during exposure prone procedures which involve operating within a body cavity where one does not have direct sight of one’s hands at all times (e.g. suturing a vaginal laceration following delivery). Students are strongly advised to avoid any involvement in risky procedures and to protect themselves adequately with gloves (for an elective in a developing country, take your own supply of disposable gloves and waterproof sticking plasters) goggles, masks and gowns whenever infectious fluids particularly blood may be dispersed. There is no substitute for avoidance. Occasionally accidents do occur involving a penetrating injury with a contaminated device or a splash of blood to the inside of the eye, nose or mouth. The risk of infection with HIV following a needlestick injury from a known HIV positive patient is 0.3% (3 per 1000 exposures); the risk is higher for deep penetrating injuries, when there was visible blood on the device before it penetrated, when the device was previously placed in an artery or vein of the infected person, or when the infected person has advanced HIV infection with a high viral load. The risk of infection with HIV after a blood splash to the inside of the eye/nose/mouth is approximately 0.1% (1 per 1000 exposures), a blood splash onto non-intact skin such as active eczema or a deep abrasion is 0.1%, and a blood splash onto intact skin essentially zero risk. Unprotected sexual contacts are very strongly discouraged. The risk of infection with HIV after unprotected sex is 0.1%. Post-exposure prophylaxis is given after serious sexual assault.

Post-exposure anti-HIV prophylaxis

In observational studies, when healthcare workers took a single anti-HIV drug Zidovudine soon after a needlestick injury and continued for 4 weeks, the risk of acquiring HIV infection was reduced by 80%. Because in the UK 5-10% of newly acquired HIV strains possess drug-resistance mutations that reduce the potency of single-agent treatment, for post-exposure prophylaxis (PEP) we currently use a potent combination of three anti-HIV drugs for four weeks. Before you set off on elective in a developing country, find out whether the host institution can provide PEP after a needlestick injury; if not, you may take a five day starter pack of anti-HIV drugs (Tenofovir plus Emtricitabine plus Lopinavir/Ritonavir) which is intended to cover the time from exposure to your prompt return to the UK.

What you do if you have a significant exposure to blood (a penetrating sharps injury contaminated with blood or bloody fluid or a blood splash to the inside of the eye/nose/mouth)

1. First aid – encourage the wound to bleed if possible; wash the wound with soap and warm water; cover the wound with a waterproof sticking plaster.
2. Report the incident to the appropriate senior person locally and follow local policies if available. These should include an evaluation of the risk posed by the exposure, HIV testing of the source patient if possible, the collection and storage of a serum sample from you and recommendations for PEP. Keep a copy of the report.
3. If the blood was from a known HIV-infected patient, you should take PEP as soon as possible, preferably within one hour. If the HIV status of the source patient is unknown and it is possible to test the source patient, ask the doctor caring for the patient to arrange an urgent HIV test and if the result will not be available within 6 hours you take the first dose of PEP while awaiting the result of the HIV test – if the test is negative, stop taking further doses of PEP. If the HIV status of the source patient is unknown but it is impossible to test the source patient, it is often difficult to decide rationally whether an exposure is of high or low risk especially if you are the victim – seek an objective opinion. Telephone the duty Infectious Disease SpR at Addenbrookes (+44)1223-245151, or contact the University Occupational Health Service Tel: (+44)1223-336594, Fax: (+44)1223-762948, email: ochealth@admin.cam.ac.uk and ask to speak to an Occupational Health Adviser (OHA) immediately stating the reason and its urgency; the OHA will help you assess the incident and offer further advice and support. If no telephone/no advice available, you should take PEP as soon as possible and return to the UK.
4. If you have an exposure sufficient to take PEP but the host institution cannot provide further supplies of PEP, you should return to the UK within 4 days for further supplies of medication.
5. If when taking PEP you develop side effects, telephone the duty Infectious Disease SpR at Addenbrookes for advice. If no telephone/no advice, if you develop vomiting stop the Lopinavir/Ritonavir, take Domperidone 10mg tds and continue the Tenofovir plus Emtricitabine; if you develop diarrhoea, stop the Lopinavir/Ritonavir, take Loperamide 4mg tds and continue the Tenofovir plus Emtricitabine.
6. If you have an exposure sufficient to take PEP, you will need to have a blood test (U&E) after 2 weeks of treatment to check for adverse drug effects, and you will need appropriate follow-up by Occupational Health including blood tests for HIV/HBV/HCV infection at 12 weeks and 24 weeks.

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