Rabies vaccine and human rabies immunoglobulin

It is essential that anyone who has potentially been exposed to rabies virus or Australian bat lyssavirus (ABLV) be protected against these diseases through the appropriate use of rabies vaccine and human rabies immunoglobulin (HRIG). Potential exposure occurs when people are bitten or scratched by animals that may be infected, or when animals that may be infected lick a person’s broken skin or mucous membranes (eyes, nose or mouth).

If you have had this type of contact with:

- bats in Australia or anywhere else in the world, OR
- any land dwelling mammal in any country where rabies is known to be a risk, you should clean the point of contact as described below and seek immediate medical attention.

Thoroughly clean the wound site with soap and water for 5 minutes. If available, an antiseptic that kills viruses such as povidone-iodine, iodine tincture, aqueous iodine solution or alcohol (ethanol) should be applied after washing. If exposed, mucous membranes such as eyes, nose or mouth should be flushed well with water. It is important to follow these processes with appropriate treatment with rabies vaccine and HRIG.

What is the difference between rabies vaccine and HRIG?

A course of rabies vaccines (given into the shoulder muscle) works to develop long term immunity, but this may take seven days to begin providing protection. For this reason, HRIG is usually given into the wound or site of injury to provide immediate short term protection while the rabies vaccines start to work. Long term protection is essential as rabies infection can take a long time to develop. Not everyone potentially exposed to rabies or ABLV will be advised to have HRIG. For example, HRIG is generally not required for people who have been previously vaccinated against rabies. When recommended, it is important to have the HRIG as well as the vaccine to ensure complete protection against rabies or ABLV.

How many doses of rabies vaccine are needed following a bite or scratch by a potentially infected animal?

A course of four doses is generally needed over a period of one month (0, 3, 7, 14 days). However, an additional fifth dose is needed at 30 days for anyone who has a weakened immune system. The injections are given in the muscle of the upper arm.

Are there any side effects?

All medicines and vaccines have side effects. For this vaccine, about 20% of people complain of redness at the injection site or a sore arm. Other side effects include fever (8%), headache (5%), stomach upset (5%), muscle aches and pains (5%) and a rash (5%).

A very small minority of people (1 in 10,000) can suffer a severe allergic reaction, with symptoms that might include difficulty breathing and swelling of the throat. This is exactly the same reaction that occurs in some people who are allergic to bee stings or peanuts. Your doctor will ask you to stay in the clinic for about 20 minutes after the rabies vaccination to ensure you are not one of those very few people who are allergic to the rabies vaccine. If this reaction occurs, it is usually easily treated at the clinic.

Throughout the world, five cases of inflammation of the brain have been reported among the millions of people who have been given rabies vaccine. These cases have not been linked with certainty to the vaccine.

Should the vaccinations be stopped if there are side effects?

The disease caused by rabies and ABLV is lethal and the recommended vaccination schedule should be continued unless there is a severe allergic reaction. If a severe allergic reaction occurs, specialist advice should be sought and the risk of developing infection must be carefully considered before deciding to discontinue the vaccinations.

Are there any people who should not have the vaccine for medical reasons?

No. The disease caused by rabies and ABLV infection is lethal, so all people bitten or scratched by a potentially infected animal should have the vaccine. If your doctor thinks there is a risk of a severe allergic reaction, then specialist advice should be sought.

What about women who are pregnant or breast feeding?

There is no evidence that the vaccine can harm unborn babies. Follow up of 200 pregnant women in Thailand found that the vaccine was safe. It is not known if the vaccine is secreted in human milk, but any vaccine present in breast milk should not have harmful effects.

What should you do if you experience vaccine side effects?

For mild side effects such as headache, muscle soreness or fever, paracetamol may be taken every four hours up to a maximum for adults of eight 500 mg tablets in 24 hours. If fever persists or you are concerned about your condition consult your doctor.

When and where is human rabies immunoglobulin (HRIG) given?

When recommended, HRIG is usually given with the first dose of the vaccine. It provides immunity until the vaccine starts to protect at about day 7. It
is preferable that as much as possible of the HRIG is injected in and around the wound site.

**How is HRIG prepared?**

It is prepared from the plasma of donated human blood.

**Are there any side effects of HRIG?**

Pain and discomfort can occur at the injection site. Fever and chills sometimes occur. As with all medicines, acute severe allergic reactions occur very rarely. Because HRIG is prepared from human blood, the risk of transmitting blood-borne infections cannot be absolutely excluded. This risk also applies to as yet unknown diseases. The risk of spreading known diseases is reduced during the production of HRIG by screening blood donors, by screening all donated blood for HIV, hepatitis B and hepatitis C, and by further processing of the blood to extract the immunoglobulins. There have been no reports in Australia of transmission of any blood borne disease in people who have received HRIG.

**Are there any other adverse effects of HRIG?**

Administration of immunoglobulin may interfere with the effectiveness of some vaccines (eg. measles, mumps, rubella and chickenpox vaccines). You should tell your doctor if you have had one of these vaccinations in the two weeks before the HRIG injection. It may be necessary for you to be re-vaccinated (with measles, mumps, rubella or chickenpox vaccines) four months after the dose of HRIG.

You should wait four months after the immunoglobulin before having certain vaccines (eg. measles, mumps, rubella and chickenpox). Otherwise these vaccines may not work.

**Help and Assistance**

For further information, please contact your local doctor or nearest public health unit or the 13HEALTH information line (13 432584).

**Related Content**

- Australian bat lyssavirus  (/HealthConditions/2/Infections-Parasites/41/Viral-Infections/752/Australian-Bat-Lyssavirus)
- Rabies fact sheet  (/HealthConditions/2/Infections-Parasites/41/Viral-Infections/744/Rabies)