

The

MANAGEMENT

of haemophilia

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HAEMOPHILIA FOUNDATION AUSTRALIA

The person with haemophilia may experience bleeding problems in any part of the body at one time or another. The areas in which bleeding occurs and the frequency vary considerably from one individual to another. Bleeds for those with severe haemophilia may be due to some trauma, but many appear to be spontaneous. Some parts of the body are more susceptible to injury than others, such as the knee, ankle and elbow joints, and hence bleeds into these areas are more common.

The person with moderate haemophilia generally suffers less frequent bleeds and these bleeds are rarely spontaneous. Bleeding into the joints can still be a problem.

The person with mild haemophilia usually only has a bleeding problem after major trauma, tooth extractions or surgery.

first priority - treat

As soon as a bleed is suspected treatment should be given. Unless the bleeding is from a small superficial cut this treatment will be in the form of infusing the missing clotting factor (*replacement therapy*). This treatment will either be given by the person with haemophilia or parent or by experienced staff at the Haemophilia Comprehensive Care Centre.

Until such time as the person with haemophilia and his family have gained experience in distinguishing potentially serious bleeds from relatively minor ones, expert medical advice should be sought. Parents may need to be assertive at times with inexperienced hospital staff, to ensure prompt treatment is given to their child.

dealing with different types of bleeds

External Cuts and Abrasions

Superficial cuts usually pose no problems. Small cuts often stop bleeding by themselves, but in most cases a Bandaid or small bandage will stop the bleeding and assist healing. Healing is also helped by keeping the wound dry. Bleeding from abrasions and larger cuts can be arrested by the application of gauze or cotton type styptool (*Graneur, Melbourne Pty Ltd*) under a firm bandage.

Cuts and Abrasions to Moist Surfaces

Small cuts to the mouth or tongue may ooze for days, and replacement therapy should be sought. Tranexamic acid (Cyclokapron) tablets may be prescribed by your haematologist. This drug helps maintain any clot that is formed and limits bleeding. Initially, sucking a smooth ice block may help. Cold, soft foods are recommended until after bleeding has ceased. Re-bleeding may occur 7-8 days after replacement therapy, sometimes requiring a further dose of treatment.

Soft Tissue Haemorrhage

Superficial bruising is common in haemophilia and is usually neither dangerous nor painful. Superficial bruises can vary considerably in size and often appear as a raised lump with blue-purple colouring. Replacement therapy is rarely necessary and the application of an ice pack, wrapped in a towel to prevent direct contact with the skin, will limit the extent of bruising. The skin of the forehead and scalp has a very rich blood supply and bruises in this area may enlarge rapidly and require replacement therapy. If the size of the bruise continues to increase, medical advice should be sought.

Some superficial bruising may occasionally be the presenting feature of deep muscle haemorrhages, which should be considered potentially dangerous and can be very painful. These commonly occur in the muscles of the lower stomach/groin (*psaos bleeds*), and the muscles of the forearm, the thigh (*quadriceps*) and calf. **If left untreated, they can lead to nerve damage and possible muscle paralysis and atrophy (wasting).** Replacement therapy and immobilisation, e.g., splints, slings or rest, are essential, and physiotherapy, when the pain has ceased, is recommended to maintain muscle strength.

If a bleed is suspected in the groin or inner wrist, there is the possibility of nerve or vessel

compression if it is not treated promptly. Any suspected hip bleeds must also be treated at the hospital.

Joint Haemorrhage (Haemarthrosis)

Haemarthroses are the single most crippling complication of severe haemophilia and can result in chronic disabling arthritis. While not life-threatening, they should never be left untreated, no matter how minor they may appear. Haemarthroses are often indicated by pain, with a reluctance to move the affected joint and, if severe, by warmth and swelling. If left untreated, the membrane surrounding the joint (*synovium*) will become distended causing severe pain.

Prompt, adequate replacement therapy and resting of the limb is **essential** and will very quickly reduce the swelling and pain. Failure to treat immediately will ultimately lead to a gradual destruction of the smooth joint surfaces (*cartilage*) resulting in arthritis. A programme of physiotherapy, as soon as the pain and swelling has subsided, is most important to maintain good joint movement and muscle tone, and will hasten the return to normal activities.

Blood in the Urine (Haematuria)

This complication occurs infrequently, often spontaneously, in severe haemophilia. A blow to the lower back or side may result in bleeding from one or both kidneys. Haematuria itself is painless but can be very persistent. It is when clots begin to form and perhaps block the passage between the kidney and the bladder (*ureter*) that very severe pain (*clot colic*) can be experienced.

Rest and increased fluid intake is recommended initially. Oral steroids are sometimes used to stop haematuria. Replacement therapy may not stop the bleeding and should only be carried out under close surveillance.

Internal Bleeding

Bleeding from the stomach or intestinal tract, in the lungs or other organs, is an uncommon feature of haemophilia. If it occurs, it is usually as a result of some other problem and medical advice should be sought promptly.

Head Injuries

A bad knock on the head to a person with haemophilia should be regarded as potentially serious and the person should be taken to the hospital immediately. The haematologist should be contacted. If untreated, a haemorrhage inside the skull may occur which could result in brain damage or even death. Careful observation in hospital for symptoms of drowsiness, dizziness, irritability, nausea and/or vomiting, dilated or unequal pupils, headache or mental confusion associated with any head injury is important. This is an indication that immediate attention is essential.

Eye Injuries

If trauma to the eye occurs, treatment must be sought immediately.

Neck and Throat Haemorrhages

If treatment is not sought immediately, these are potentially dangerous as the swelling can obstruct the air passages. Tonsillitis, sore throat or severe coughing associated with bronchitis or whooping cough may precede a throat bleed. However, bleeding in these areas may be mistaken for mumps, so care in diagnosis is needed.

Nose Bleeds (Epistaxis)

Nose bleeds are sometimes spontaneous and often associated with a "cold in the head", hay fever, nasal polyps or just blowing the nose too hard. Firm pressure applied to the soft part of the nostril and, if desired, an ice pack to the bridge of the nose for five minutes by the clock, may be sufficient to stop the bleed.

The person must sit forward, if able, whilst holding the nose, so that any blood going down the back of the throat will be spat out and not swallowed. If bleeding persists, however, professional packing, cautery, or replacement therapy must be sought. Tranexamic acid tablets may be useful in individuals with haemophilia A who have recurrent nose bleeds. Nemdyn cream (*prescription necessary*) may also reduce the frequency of nose bleeds.

Mouth, Gum and Cheek Bleeds

See cuts and abrasions to moist surfaces. Please refer to your Haemophilia Comprehensive Care Centre if bleeding persists or if the injury is more severe.

dental care

It is the lack of dental care, not the disorder, that can cause problems in persons with haemophilia. A proper preventive programme should be implemented to reduce tooth decay and maintain healthy gums. By restricting in-between-meal snacks, with regular brushing after meals, and by taking the recommended amounts of fluoride (*or drinking fluoridated water*), fillings and extractions will be minimised. "Nursing bottle caries" (*holes*) in babies and toddlers will be avoided if these children are not given sugary drinks (*including milk*) in bottles when they go to bed. Providing deciduous teeth are not forcibly loosened or removed, they should pose little problem when they fall out naturally. The extraction of teeth in any person with haemophilia requires the close supervision of your Haemophilia Comprehensive Care Centre so that pre-operative and post-operative replacement therapy and tranexamic acid (*Amicar*), a fibrinolytic inhibitor, can be given. Good dental hygiene is regarded as essential.

See the dentist who is part of the haemophilia care team for regular check ups.

diet, nutrition and exercise

These are important factors in overall haemophilia care. A person with haemophilia should take the necessary steps to control his weight. Firstly, the extra weight produces unnecessary stress and strain on weight bearing joints, such as the knees and ankles. Secondly, it increases the dose (*measured in units per kilogram of body weight*) required during replacement therapy. It makes veins difficult to find too! A well balanced, nourishing diet is therefore essential and, of course, helps maintain healthy teeth.

As muscle wasting and decreasing joint mobility are hazards of haemophilia, a daily exercise programme is recommended. Exercise will produce and maintain a strong body that will protect young people with haemophilia from potential disability.

immunisations

Children with a bleeding disorder should receive all of the normal immunisations at the usual age. Even those with severe haemophilia can have these without the fear of bleeding if given deep subcutaneously (*into the fat*), not intra-muscularly.

pain relief

Pain is often a major complaint of the person with haemophilia, usually associated with haemarthroses or arthritis, and sometimes with deep muscle haematomas. At the outset, it must be said that **there is no substitute for prompt, adequate replacement therapy** for the relief of pain associated with haemarthroses and deep muscle bleeds. Physiotherapy, ice packs and splinting often

provide some pain relief.

For the relief of severe, persistent and chronic pain, analgesics are often necessary.

Drugs containing aspirin should never to taken by a person with haemophilia as they decrease clotting efficiency and can cause stomach bleeding.

Analgesics containing paracetamol and/or codeine are considered safe and effective, and are available without a prescription. For very severe pain, some stronger recommended analgesics are available on prescription.

In all cases care must be exercised in taking any analgesic drug to avoid excessive use with a possible build up of "tolerance" and drug addiction. The use of a TENS machine can sometimes bring worthwhile pain relief. Non-steroid, anti-inflammatory drugs may be helpful in the management of arthritic pain but should only be used under close supervision as they can cause bleeding.

surgery

Surgery for the person with haemophilia is still a problem because of the large quantities of replacement therapy usually required. For this reason, surgery is undertaken only after exhaustive consultations between the medical care team and the Red Cross Blood Transfusion Service. Surgery on a person with haemophilia should always be undertaken at a major hospital experienced in haemophilia treatment, where adequate quantities of clotting factor and a comprehensive laboratory service are readily available. Major surgery on a person with haemophilia, such as joint replacement, is becoming much more common.

what is replacement therapy?

Replacement therapy is the mainstay of haemophilia treatment and involves the intravenous (*into the vein*) administration, or infusion of blood plasma or recombinant concentrates to replace the missing or defective clotting factor.

Products used to treat haemophilia in Australia at the time of writing include:

- **DDAVP**

(*deamino-D-arginine vasopressin*)

This synthetic hormone, when infused or inhaled, raises factor VIII levels in people with mild haemophilia A and von Willebrand's Disease.

- **Factor VIII or AHF Concentrate**

(*Plasma derived*)

This is a freeze-dried white powder containing the factor VIII protein, and von Willebrand factor, produced by CSL Ltd in Melbourne from fresh frozen plasma from all Australian states. The separation of the plasma into its many constituents, by a process called fractionation, is a complex and expensive procedure. This product is used to treat haemophilia A and von Willebrand's disease.

The factor VIII concentrate, contained in small glass bottles, can be stored in a normal refrigerator at 4°C for many months and is reconstituted (*dissolved*) with sterile water immediately before use. Each bottle contains 250 units factor VIII and is administered into a vein by injection. The number of bottles required for a particular bleed depends upon the person's weight and the site of bleeding.

If on home treatment or using a travel kit,

factor VIII expiry dates should be checked, with all unused factor VIII to be returned two months before expiry. All details must be recorded on the home treatment record sheets.

- **Recombinant Factor VIII**

This is made from cells which have been modified so that they produce factor VIII rather than from human plasma. The product is purer than the plasma derived factor VIII currently available in this country. Very stringent precautions have been taken to ensure that it is free from viruses. It is used in the same way and in the same dosage as the plasma derived factor VIII.

- **Prothrombinex-HT**

This freeze-dried powder contains the clotting factors II, IX and X and is also made by CSL Ltd. It is stored in a normal refrigerator between 4°C and 8°C and is reconstituted and administered in the same way as AHF concentrate. This product is used mainly for the treatment of haemophilia B but also in prothrombin and factor IX deficiencies. It has an important role in the management of haemophilia A with inhibitors.

- **Other Treatment Products**

A number of other products, both plasma derived and recombinant, are available for special circumstances and for the treatment of rare bleeding disorders. Fresh frozen plasma and cryoprecipitate are still occasionally used as sources of factor replacement.

blood products and testing

HIV

Since April 1985 all units of blood have been screened for HIV, the virus which causes AIDS.

According to all available evidence, there has been no transmission of HIV caused by transfusion of blood or blood product in Australia since screening procedures and the heat treatment of AHF and Prothrombinex were introduced.

Hepatitis B

Screening for Hepatitis B has been taking place since the early 1970's. The risk of infection has therefore been greatly reduced. Newly diagnosed people with haemophilia should be routinely immunised against this infection.

Hepatitis C

The detection of Hepatitis C, the causative agent of most post transfusion non-A non-B Hepatitis, has enabled a screening test to be developed. Screening for Hepatitis C was introduced in February 1990. The increase in heat treatment, from 60°C to 80°C of AHF (since 1989) and Prothrombinex - HT (since 1994) also protects against the transmission of hepatitis viruses.

inhibitors - antibodies

Every person produces antibodies which are a defence mechanism against disease. The process of immunisation against measles, for example, produces antibodies which specifically destroy measles viruses if they get into the body. A small number of people with haemophilia A, and an even smaller number with haemophilia B, develop a strong anti-body or inhibitor to factor VIII or factor IX which means that the clotting factor is destroyed almost as soon as it is infused (*transfused*). It is presently unknown why this inhibitor develops. The treatment of a person with haemophilia who has developed an inhibitor to factor concentrates is difficult and requires special medical care.

home therapy - supervised self-treatment

Home therapy involves either the person with haemophilia, or a member of his family, being taught to administer the replacement factor when it is required.

The main benefits are:

1. The ability to infuse the required replacement factor with the least delay after a bleed is recognised. The shorter the time between the onset of a bleed and the start of replacement therapy, the shorter will be the time to resume normal activities and the less damage will result from the bleed.
2. The promotion of self-reliance and the reduction of dependence on physicians and hospital services.
3. The reduction in lost time at school, at work or at play, and an increase in the freedom to travel (*e.g., on holidays*) to areas remote from hospital facilities.
4. Less disruption for all family members.

Of course, there are a number of considerations before a person with haemophilia can start on a home care programme. Some people, especially young children, have difficult veins. In these cases it may be appropriate to consider the insertion of a long-term venous access device (*a port*) to facilitate treatment at home. The port is inserted under the skin using general anaesthesia and usually lasts many months, or even years. The person with haemophilia, or the family, may be considered psychologically unsuited and all parties must be willing to take part in the programme. The person with haemophilia, or the family, must understand the requirement to keep adequate records of all treatments, and must maintain

close contact with the supervising physician with regular (*yearly minimum*) physical assessments.

Supervised self-treatment is still dependent on the availability of suitable replacement factors.

prophylactic (preventive) treatment

Despite prompt treatment of bleeds, many people with haemophilia will eventually develop permanent damage in one or more joints. This damage results in pain and/or loss of function at the joint and there is no simple treatment for this. Overseas experience has shown that the use of prophylactic treatment, i.e., giving factor replacement before a bleed occurs, can greatly reduce the risk of developing joint damage in early life. It is now, therefore, becoming increasingly common to start children on prophylactic treatment from an early age, usually about the age of one or two years. This involves giving an injection of the factor two or three times a week through-

out childhood. The objective is to convert severe haemophilia into moderate or mild haemophilia. This prophylactic treatment can generally be given at home. The exact dose required will be determined by the doctor in the Haemophilia Comprehensive Care Centre.

Very high standards of hygiene and care must be maintained when dealing with any medical procedure. The person with haemophilia, or his family, will be made fully aware of the precautions and procedures necessary when undertaking home treatment by the staff at their Haemophilia Comprehensive Care Centre.

Those with the severe form of congenital bleeding disorder should be reviewed by the hospital every three to six months or as determined by the treating doctor.

Extreme care should still be taken in handling blood, blood products and equipment, irrespective of their source. These can be the cause of a range of blood borne infections such as the hepatitis viruses and HIV.

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