17 Poliomyelitis

Vaccine introduced in 1957

NOTIFIABLE

In some circumstances, advice in these guidelines may differ from that in the Summary of Product Characteristics of the vaccines. When this occurs, the recommendations in these guidelines, which are based on current expert advice from NIAC, should be followed.

Introduction

Poliomyelitis is an acute illness which may result from invasion of the gastro-intestinal tract by one of three types of polio virus (1, 2 and 3). The virus has a high affinity for nervous tissue. Inactivated poliomyelitis vaccine (Salk) was introduced to Ireland in 1957 and replaced by attenuated live oral polio vaccine (Sabin) in the early 1960s. Inactivated polio vaccine was reintroduced into the primary immunisation schedule in 2001. Individuals born before 1958 may not have been immunised. One case of polio can potentially infect up to 5 non-immune contacts.

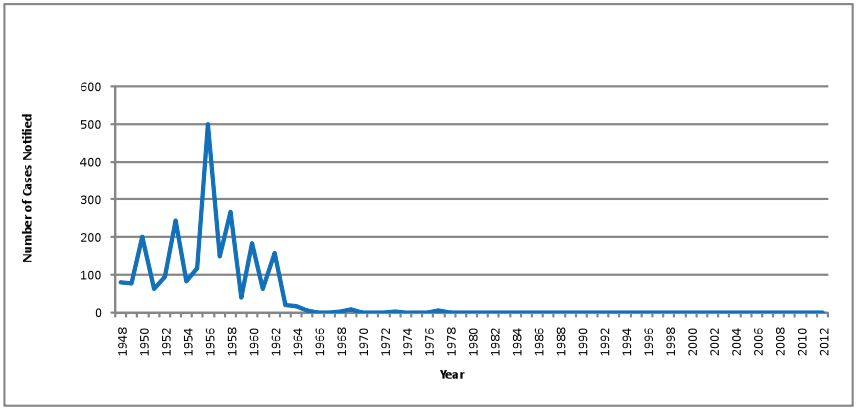
Epidemiology

The most recent case of wild poliomyelitis notified in Ireland was in 1984 (Figure 13.1). Worldwide, polio cases have decreased by over 99% since 1988, from an estimated 350,000 cases then, to 223 reported cases in 2012. The reduction is the result of the global effort to eradicate the disease.

Since 2008, however, more than 20 countries (in Europe, Africa and South Asia) have experienced outbreaks of polio imported from endemic countries—some of them multiple times. Up to November 2013, cases of wild polio have been reported from Afghanistan, Cameroon, Ethiopia, Kenya, Nigeria, Pakistan, Somalia, and Syria. This shows the ongoing threat of wild polio virus and the need to maintain high immunisation levels and to report cases of acute flaccid paralysis (AFP).

Transmission is through contact with the faeces or pharyngeal secretions of an infected person. The incubation period ranges from 3-21 days, but may be longer. Cases are most infectious from about 10 days before to 7 days after the onset of symptoms. However, carriers and some immunocompromised persons may shed virus in the faeces for longer than 6 weeks.

Figure 13.1 Number of polio cases notified in Ireland 1948 - 2012
Source HPSC



Effects of poliomyelitis

Most infections are clinically inapparent. Clinical disease may range in severity from a non-paralytic fever to aseptic meningitis or paralysis. Symptoms include headache, gastro-intestinal disturbance, malaise and stiffness of the neck and back, with or without paralysis. The proportion of inapparent to paralytic infections may be as high as 1,000:1 in children and 75:1 in adults. A case-fatality rate of more than 50% can occur in young adults with paralytic polio.

An active world-wide surveillance system for acute flaccid paralysis has been in operation since 1998. In any case of acute flaccid paralysis, it is essential to obtain two faecal samples 24- 48 hours apart for viral culture, as soon as possible after the onset of paralysis.

Poliomyelitis vaccine

Poliomyelitis vaccine is available as Inactivated Polio Vaccine (IPV) in combination with other vaccines. Live oral polio vaccine (OPV) is no longer licensed in Ireland or European Union countries but is used in other parts of the world.

Inactivated Polio Vaccine (IPV)

IPV contains polioviruses of all three types which have been inactivated by formaldehyde. It is only available as a combination vaccine as DTaP/IPV/Hib/HepB (6 in 1), DTaP/IPV (4 in 1), Tdap/IPV or Td/IPV.

An up-to-date list of licensed vaccines can be accessed on the IMB website www.imb.ie

A list of the currently available vaccines from the National Cold Chain Service can be found at www.immunisation.ie

The vaccine should be stored between +2 to +8°C. If a vaccine has been frozen, it should not be used.

Dose and route of administration

The dose is 0.5 ml, given by intramuscular injection into the anterolateral thigh or deltoid muscle.

Indications

1. Primary vaccination

The primary course consists of 3 doses given at 2, 4 and 6 months as 6 in 1 vaccine.

If the primary course is interrupted it should be resumed but not repeated, allowing appropriate intervals between the remaining doses (see catch-up schedule in Chapter 2).No additional doses are necessary if more time than recommended elapses between doses.

Those who started the vaccine series with one or more doses of OPV in another country should receive IPV to complete the series. A minimal interval of 4 weeks should elapse between OPV and IPV but a gap of at least 2 months is preferable.

2. Booster vaccination

Routine

A booster dose is recommended at 4-5 years of age as 4 in 1 vaccine. Children coming from other countries who have received four IPV containing vaccines before their fourth birthday as part of their primary course should receive the 4 in 1 booster (i.e. a fifth dose of IPV) ≥ 6 months after the previous dose.

Fully immunised persons at increased risk of exposure

Fully vaccinated persons aged 10 years and over at increased risk of exposure to poliovirus should be given a single dose of Tdap/IPV.

At-risk persons include those:
- travelling to countries or areas where poliomyelitis is epidemic or endemic
- in contact with patients who may be excreting wild poliovirus
- in contact with specimens that may contain wild poliovirus.

Contraindications
Anaphylaxis to any of the vaccine constituents.

Precautions
Acute severe febrile illness, defer until recovery.

Type III (Arthus) hypersensitivity reaction to a previous dose (see Adverse reactions). Persons experiencing these reactions usually have very high serum diphtheria or tetanus antitoxin levels; they should not be given further routine or emergency booster doses of tetanus or diphtheria containing vaccines more frequently than every 10 years.

Adverse reactions
Local: Pain, palpable lump, swelling and erythema at the injection site occur in up to 20% of recipients. They are more frequent with subsequent doses. Most of these reactions resolve with no treatment. A cold pack or ice wrapped in a cloth applied to the site for 20 minutes per hour as necessary may be required. On occasions paracetamol or ibuprofen may be needed. Antibiotics are very rarely indicated.

Very rarely a Type III (Arthus) hypersensitivity reaction occurs, involving swelling and erythema of most of the diameter of the upper arm from shoulder to elbow. This usually begins 2-8 hours after vaccination and is more common in adults. This resolves without sequelae.

General: Malaise, transient fever and headache are uncommon. Temperature over 40°C is rare. Dyspnoea, urticaria, angioedema, and neurological reactions are very rare.

Anaphylaxis is extremely rare (0.6-3 per million doses).

Bibliography

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