

WHO MONOGRAPH ON PRESENT KNOWLEDGE ABOUT POLIOMYELITIS

The wide field of present knowledge about poliomyelitis is reviewed in a 400-page monograph just published by the World Health Organization.*

Polio occurs throughout the world and every human being is sooner or later subject to infection by one or another of the 3 known types of polio virus—'Brunhilde', 'Lansing' and 'Leon'.

Infection by the polio virus takes a number of forms varying from a non-apparent infection, which, however confers immunity, to severe paralytic illness. Indeed it is only in a very small number of cases that the infection develops into the acute and easily recognizable paralytic form of the disease, which strikes principally those who have not acquired a sufficient degree of immunity.

In the economically less-developed countries, immunity is acquired at an early age, and the more serious forms of the disease are then rare. In the more developed countries, immunity is acquired at increasingly later ages depending on higher standards of hygiene and living conditions, and the paralytic form of the disease then occurs with greater frequency. The relationship between serious cases of polio and high living standards has given polio the reputation of being a 'rich man's disease'. Similarly polio appears more in the country than in the town because country children are less exposed to infection resulting from the crowded conditions of town life, and therefore have less chance of acquiring immunity. The monograph mentions epidemics occurring in

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South Africa in 1945 and 1948, in which 10 times as many Europeans as Bantus were affected by paralysis.

EPIDEMIOLOGY

It was not until the late 18th and early 19th centuries that poliomyelitis (then called infantile paralysis, because it attacked only very young children) began to attract the attention of the medical profession. The first indication of anything resembling an epidemic came from the Island of Saint Helena in 1836. Outbreaks followed in Norway in 1868, France and Sweden in 1880, the north-east section of the USA in the 1890's and the south-east section about 1910. In the course of the last 20 years epidemics have been reported from various tropical and sub-tropical countries, and today polio is recognized as practically a world-wide disease.

During the 'pre-epidemic era' up to 90% of paralytic cases were concentrated in the 0-4 age-group. Later the maximum attack rates shifted to the 5-9 group, then to 7-15 and even 15-23. Today the 'age-incidence' continues to rise and in a few highly developed countries it is now above 30 years.

This shift may be explained by improvements in hygiene and in living standards which resulted in children becoming infected increasingly late in life in the more developed countries, while in less developed areas, they continue to get the infection while young.

This explains why it has frequently been observed that people coming from highly developed countries where polio is found in severe epidemic form, often contract the disease when they arrive in a country where polio is endemic and where it rarely produces paralytic cases, because in the latter areas the infection is widespread throughout the population from the earliest age.

Polio is a seasonal disease in temperate regions of both hemis-

pheres where epidemics appear in general during the summer. In tropical zones cases occur uniformly throughout the year with peaks in November-December or February-March, and coinciding in certain countries with the rainy season.

SYMPTOMS

After an incubation period of about 10 days, the first symptoms appear: temperature, sore throat, nausea and vomiting, abdominal pains, constipation, diarrhoea, and abnormal fatigue.

Next comes the 'pre-paralytic' phase, which lasts an average of 3-6 days. It is characterized by a flushed face with paleness around the mouth, slight temperature, headaches, and leg and back pains. The paralytic phase usually follows a few days later, generally not more than 3.

IMMUNITY

The great majority of the population of the world develops polio antibodies without any outward signs of even a mild form of the disease. The blood-serum of adults who live in epidemic areas but have never had any outward signs of the disease almost invariably has the power of neutralizing the virus because of the presence of antibodies in their blood. However, the antibodies are effective in varying degrees depending upon which of the 3 known strains of the virus they have to combat, and upon the age at which the individual has acquired the antibodies.

The monograph brings out the following points:

1. The use of blood plasma from convalescent patients has not given conclusive results.
2. The administration of gamma-globulin obtained from the blood of persons who have acquired polio antibodies has proved of little practical value.
3. The results of numerous experiments suggest that an anti-

polio vaccine may become available to the health officer in the not too distant future.

PRECAUTIONS

The WHO Monograph concludes with a list of precautions to be taken during epidemic periods in order both to reduce the spread of infection and to minimize the number of paralytic cases: frequent washing of hands; protection of food from flies and thorough washing of fruit and uncooked vegetables; avoidance of intimate associations with members of a family in which a case of polio has occurred recently; caution in treating all cases of fever; avoidance of over-exertion; closing down of unchlorinated swimming pools; and, until more information is available, avoidance where possible of operations for the removal of tonsils or adenoids, and suspension of vaccination campaigns and intramuscular injections of an irritant character.

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