OUR PRIZE COMPETITION.

WHAT DO YOU UNDERSTAND BY INFECTION? BY WHAT MEANS ARE INFECTIOUS DISEASES TRANSMITTED? GIVE AN EXAMPLE.

We have pleasure in awarding the prize this week to Miss Amy Phipps, S.R.N., F.B.C.N., Longmarton, Ashford, Middlesex.

PRIZE PAPER.

Infection is the process by which a disease is communicated from one person to another; hence the term, infectious diseases. In such diseases there is some substance produced in the body of the diseased person, which, on being transmitted to another, is capable of reproducing itself in larger quantity, causing a particular disease.

The belief that all infectious diseases are associated with minute living organisms (bacteria) is now generally accepted, and in many cases, the specific organism has been isolated and conclusively demonstrated.

These organisms possess an independent existence, and when introduced into the body have powers of multiplying enormously.

In some cases they are the direct cause of the disease, in others the disease is due to morbific materials to which they give rise.

In order to combat any specific disease, it is necessary to know the habits and understand the requirements of the organisms which give rise to the disease, that effective treatment may be intelligently applied.

Certain germs are anærobic or otherwise, all are affected by temperature, and again, the same bacterium will produce various types of disease.

In most cases the micro-organism enters the body, multiplies, and produces a condition of inflammation and toxæmia, which is accompanied by fever, and sometimes by a distinctive rash or eruption.

When the germ, under favourable conditions, has set up a specific fever, the disease runs a more or less definite course, divided into five periods, which merge into one another, viz.:—

(1) Incubation period.—The germ is growing and multiplying in the body, but as yet has produced no symptoms.

(2) Invasion period.—Now the whole body is affected to a varying extent by the toxins produced by the micro-organism, and such symptoms as pyrexia, vomiting, loss of appetite, etc., are present.

(3) Period of advance.—The disease is fully developed, rashes appear and general symptoms increase.

(4) Period of defervescence.—The temperature falls by lysis or crisis, and the result of the attack is more or less determined.

(5) Period of convalescence.—The patient is getting well. This period is very prolonged in some cases, but varies according to the conditions of the case in point.

The Notification of Infectious Diseases Act has done a very great deal to limit the spread of infection, and where this operates intelligently, with a good local Public Health Service, epidemics are now very uncommon.

Each disease has its own particular micro-organism, and enters the system in different ways. Having entered, and all conditions being favourable to its life, growth and multiplication, it sets to work, and often produces symptoms with alarming rapidity.

The three methods by which the germ may enter the body are:—

(1) Inhalation.—Examples of this are Pulmonary Tuberculosis, Whooping Cough, Smallpox, etc.

(2) Ingestion.—Examples are Typhoid Fever, Cholera, Tubercular Peritonitis.

(3) Absorption through the mucous membrane. Examples are, Gonorrhœa, Scarlet Fever, the latter germ setting on the mucous membrane of the fauces.

(4) Through abrasions in the skin. Example, Hydrophobia. Certain diseases may also be carried by bugs, fleas, etc., the germ gaining entrance with the bite of the animal. Outbreaks of typhus fever have spread alarmingly in this manner.

The spread of all infectious diseases is influenced to a very great extent by such predisposing causes as (1) Defective sanitation; (2) The health of the particular individuals; (3) Steps taken to produce active or passive immunity, (4) The existence of natural immunity or otherwise; (5) The extent to which conditions are favourable or otherwise to the growth and life of the micro-organism of the disease.

The infective material may be transmitted to a healthy person by direct contact, or by contact with infective material (fomites).

As an example of the transmission of infection, we may consider typhoid fever.

The disease is due to a bacillus, discovered by Eberth in 1880, viz., the bacillus typhosus, which is found in large numbers in the excretions of a patient suffering from the disease. The disease is readily spread by drinking water, milk, food, etc., which has become contaminated with sewage containing the specific organism, dust and flies may also act as mediums to convey the bacilli, in cases where the discharges of the typhoid patient have been allowed to dry or to remain uncovered.

The bacillus is not equally hurtful at all times and under all circumstances, and when all discharges, sheets, etc., are carefully and intelligently disinfected without delay there is little risk of direct infection. On the other hand, all insanitary conditions, impure water supply, etc., favour the spread of the disease, and the source of an epidemic has been traced to oysters obtained from a contaminated oyster bed.

Typhoid fever, like many other diseases, is preventible, and we look forward to the day when efficient sanitation will have wiped out the disease entirely.

HONOURABLE MENTION.

The following competitor receives honourable mention: Miss Winifred Sloane Evans, Plymouth.

QUESTION FOR NEXT MONTH.

Why is the hygiene of the mouth important? How should it be applied (1) in the case of an infant, (2) in the case of a child or an adult patient? What conditions requiring special care may occur in sickness?

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