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Human Physiology, Diseases, Disorders Due to Sex Chromosomal Genes

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Human Physiology, Diseases

Diabetes Mellitus

This disease is characterised by the presence of excess quantity of sugar in the blood and urine. It is caused due to defective functioning of the Beta cells of islet of langerhans in the pancreas which fail to secrete insulin hormone. Due to the absence of insulin, the tissues are unable to utilize glucose. This results in the increase in the quantity of glucose in the blood. The sufficient oxidation of glucose affects the metabolism of fats. During fat metabolism, the ketenes are produced as intermediate products. These ketenes accumulate in the blood and result in the ketosis. This disease can be controlled by restricting sugar in the diet. The injections of insulin can also help to check the level of glucose in blood.

Obesity

It is a nutritional disorder. If any person takes more food than the body needs, then the surplus food turns into fat and accumulates in the body. This is known as obesity. In man, obesity means body fats more than 20 % of his total weight whereas in woman, obesity results when body fats are more than 30 % of her total body weight.

Lathyrism

This disease is caused by eating large quantities of 'Kesari Dal' (Lathyrus sativus) by the poor people. It is a disease of the nervous system and that cripples man. Common symptom of the disease are lesions on the lower spinal segments followed by paralysis of legs.

Exophthalmia or Dry Eye Disease

It is caused due to deficiency of vitamin A. In this disease lachrymal glands stop producing tears, a condition conducive to subsequent bacterial infection and eventual blindness.

Pernicious Anaemia

It is caused due to deficiency of Vitamin B12 and in this disease; formation of R. B. C. is reduced in the bone marrow. It is also called Megaloblastic anaemia. Vitamin B was

first recognised by Japanese sea men.

Rickets

It is caused in children due to deficiency of calcium and phosphorous.

Ariboflavinosis

Insufficient amount of riboflavin (Vitamin B2) results in a disorder called Ariboflavinosis. The symptoms of this disease are: cracking of skin at angles of mouth, dermatitis, blurred vision, burning and soreness of eye and tongue.

Pellagra

Insufficient amount of niacin results in a disease called Pellagra. The symptoms of this disease are: tip and lateral margins of the tongue, mouth and gums become red and swollen and later develop ulcers.

Disorders Due to Sex Chromosomal Genes

Colour Blindness

In this disease, a person cannot distinguish between red, green and blue colours. The gene determining colour blindness is carried on the X- chromosome. The Y- chromosome does not carry any gene connected with colour perception. Strangely enough, woman rarely suffers from this defect and yet, a man always inherits this defect from his mother.

Haemophilia (Bleeder'S Disease)

In this disease, blood lacks the capacity to coagulate. Under normal conditions if a person gets some external injury or cut in the body, the blood starts oozing out and gets clotted in 2 to 8 minutes. But if a person is suffering from haemophilia, a small cut may lead ultimately to death due to lack of ability of blood to clot. Like colour blindness this disease is also found in males and rarely in females.

Communicable Diseases

Diseases Caused by Viruses

Following are some of the important viral diseases in man:

- Chicken Pox
- Small Pox
- Measles
- Trachoma
- Poliomyelitis
- Influenza.

- Rabies

Chicken Pox

Causal Organism Varialla-Zoster

Mode of Spread

- By direct contact with diseased person.
- By indirect contact i.e., by clothing, bed and other articles used by patient might spread the diseases to a healthy person.

Symptoms

- Occurrence of moderate fever in the beginning.
- Appearance of rashes or eruptions within 24 hours from the time of infection. These rashes pass through several stages.
- Appearance of crusts or scabs finally. These crusts or scabs fall off within 14 days after the rash begins.

Prevention and Control

- The patient suffering from this disease should be isolated from public places until all crusts or scabs are fallen off.
- Bed and clothing of patient should be kept clean.
- Calamine lotion should be applied on the rashes.

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