

Some Common Water Borne-Diseases in Human Due to use of Contaminated Water

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1. INTRODUCTION

Health :- The health is a state of complete physical, mental and social well-being. A truly healthy person is one who possesses sound body, lives in harmony with others, capable to face unfavourable circumstances and hold moral and spiritual values.

Disease:- Condition of body or any organ when not works properly, means the person is suffering with any disease.

Myth behind disease:- From time immemorial, diseases have been a prime concern of man. Early man thought that diseases were caused by evil spirits, hence cure consisted of pacify the evil spirits with the help of charm and magic. Hippocrates (B.C. 460-359), the Great Greek physician, was the first to separate medicine from religion and superstition. He gave description of disease, symptoms and emphasized the need for good diet, fresh air and rest. He also described that human body has its own capability to fight against infection. Water is very essential part of life. Since the time man has been constantly infected by microorganisms. In, INDIA en masse death of hundreds of human population has been reported to be caused by Plague, Tuberculosis etc. The sufferers were given due attention from all sorts of sanctity and cleanliness assuming that Goddess, Mata Sheetla has blessed that victim. All these had been taken with religious view rather than Microbiological. But now people became aware of the agent of these diseases.

Agents for diseases:- There are a number of agents which are responsible for the spread of diseases. These agents may be pathogens, pollution, physical components of environment, more or less secretion of hormones or enzymes, deficiency of vitamins or minerals chemical agents or mechanical injury etc. The human body is a complex and thriving ecosystem. It contains about 10^{13} human cells and also about 10^{14} bacterial, fungal, and protozoan cells, which represent thousands of microbial species. These microbes, called the **normal flora**, are usually limited to certain areas of the body, including the skin, mouth, large intestine, and vagina. In addition, humans

are always infected with viruses and bacteria, most of which rarely, if ever, become symptomatic.

The types of various human diseases are:-

1. Air-Borne Disease
2. Food-Borne Disease
3. Water-Borne Disease
4. Soil-Borne Disease
5. Sexual Transmitted Disease

WATER BORN DISEASES:- Water borne diseases are more prevalent in rainy season, because in this season the presence of humidity in air and favourable temperature support the growth and spread of infection. Basically, water borne-diseases are the result of intake and use of water with poor quality. Most common water borne- diseases are caused by bacteria, viruses, protozoans, helminths etc. by drinking contaminated water. Some diseases are:

Disease	Pathogen	Symptoms	Treatment/Cure
1-Amoebiasis (Amoeboid dysentery)	Entamoeba histolytica	Liquid stool with blood, wounds in intestine, ulcer due to dissolution & destruction of mucus lining of intestine.	Use safe drinking water, proper sanitation & good hygiene. Drug- Emetin, Erythromycin.
2-Ascariasis	Ascaris lumbricoides	Causes loose motions, pneumonia, abdominal pain, anemia & bronchitis, vomiting, headache, irritability & night terror, often gritting the teeth in sleep.	Piprazine citrate syrup, santonin oil of chenopodium.
3- Balantidiasis	Balantidium coli	Diarrhoea & ulceration in large intestine.	Terramycin

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4- Bascillary Dysentery (Bascillaris)	Shigella species	Abdominal pain, watery diarrhoea, mild fever, painful stool, frequent stools with bloody mucus. It spreads by oral-faecal route.	ORS, Antibodies for children & aged people, Tetracycline
5- Cholera	Vibrio cholerae	Spread during flood, fairs & other natural calamities. Symptoms- acute diarrhoea, vomiting & muscular cramps causes dehydration, loss of minerals & finally death.	Treatment is to restore water balance in the body by injection of tetracycline. Prevention- personal hygiene, sanitation & use boiled water.
6- Conjunctivitis	Loa loa (eye-worm)	Causes destruction in the tissues of eyes when use contaminated water in bathing.	
7-Diarrhoea (Intestinalis)	Giardia lamblia	Causes intestinal disorders, epigastric pain, abdominal discomfort, loss of appetite & headache. Infection is more in children than adults	Chloroquin, Camoquin, Atabrin etc. Cure- Proper disposal of human faeces, health education
8-Dracunculosis (Guinea worm disease)	Dracunculus medinensis	In arms, shoulders & legs cause blisters on skin, fever, swelling, pain, chronic skin ulcer, nausea, vomiting, diarrhoea.	No medication is available, however, worms can be surgically removed before an ulcer forms. Aspirin can help to reduce swelling.
9- Enterobiasis	Enterobiasis vermicularis	In caecum, rectum & appendix causes severe itching.	
10- Gastroenteritis	E. coli	By using contaminated water digestive system disturbs, loose motions & vomiting.	

11-Hydatid Disease	Echinococcus granulosus	By drinking contaminated water with onchosphere-containing eggs of Taenia causes inflammation of tissues. Their presence in brain & kidney may prove fatal.	Atabrin drug is available.
12-Hepatitis	Hepatitis A virus	Inflammation of liver may be caused, liver cirrhosis, nausea, vomiting, jaundice.	Prevention of faecal contamination Use of Immune globin, Hepatitis A vaccine available.
13-Jaundice	Leptospira sp.	Affects liver & blood, body parts become yellow.	No medication in alopathy.
14- Leptospirosis	Spirochaeta	By using contaminated water with rat or dog urine mostly occur to veterinarians, pet shop owners, sewage workers & farmers. Symptoms- headache, muscle pain, eye pain, fever with cold, watering & redness of eyes, also affect brain, kidney, liver, heart & jaundice.	
15- Schistosomiasis	Schistosoma mansoni	Larvae of Schistosoma come in contact with water, causes asthmatic attacks & hepatitis, fever, sweating, diarrhoea, weight loss & loss of appetite.	Antimony compounds
16- Typhoid	Salmonella typhi	High fever, slow pulse, constipation, intestinal ulcer, bloody stools, headache, diarrhoea.	Ciprofloxacin etc. Prevention of faecal contamination
17- Trichuriasis	Trichuris trichiura (whip-worm)	Eggs of these pathogen gain entry to human body with contaminated drinking water & causes nausea, vomiting, fever, constipation, headache, anemia & eosinophilia.	Osarsol drug

18-Whooping Cough	Bordetella pertussis	Irritating cough along with bouts of dry cramps in throat.	
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WATER INDUCED OR VECTOR RELATED DISEASES:- Some diseases are not directly caused by water, but water forms a reservoir or carrier in which pathogens can live. Such carriers or agents transmit the pathogens from one person to another. Therefore, these carriers are known as Vectors.

Diseases caused by vectors/agents from one person to another are known as **water induced diseases**.

Some water induced diseases are:-

DISEASE	PATHOGEN	SYMPTOMS	DRUG/TREATMENT
1-Malaria	Plasmodium vivax vector female Anopheles	Periodical attacks of high fever, pain in joints accompanied by chill, fast pulse.	Quinine, Atabrin, Camoquin, Chloroquin. By fumigation, spraying insecticides mosquitoes can be killed.
2-Dengue	Female Aedes Mosquito	Severe pain in limbs & muscles, high fever & prostration. Fever is known as “break-bone fever” or “hemorrhagic fever”, circulatory failure, severe vomiting & facial rashes.	Early clinical diagnosis, Spray of insecticides in stagnant water areas, Analgesics & fluid replacement therapy.
3-Filariasis (Elephantiasis)	Wuchereria bancrofti vector female Culex	In lymph vessels, Abdominal enlargement & swelling of legs, genital organs & lower abdomen.	No proper or satisfactory treatment is yet known, infection may be reduced by the eradication of microfilariae from circulation by injecting heterozoan & antimony.

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