

malaria of man.

③ Death rate is very high because the infected R.B.Cs tend to clump into masses, thus blocking up small blood vessels of internal organs, such as brain, spleen, lungs, etc.

④ Fever recurs every second or third day that is, after 36 to 48 hours.

3) Quartan :-

① It is caused by *P. malarial*.

② The fever recurs every fourth day, that is, after 72 hours.

③ Death rate is low.

④ Chronic infection may result in lethal kidney conditions.

4) Ovale or mild tertian :-

① It is caused by *P. ovale*.

② The fever recurs third day or after 48 hours.

③ It is not greatly harmful and is mainly confined to tropical Africa.

5) Quistodean :-

It is caused by mixed infection of more species.

CONTROL OF MALARIA :-

The war waged on the malaria parasite is fought by attacking it simultaneously on three major fronts. In other words, all the control measures fall under

the following three categories :-

- A. Elimination or destruction of fever i.e. Anopheles mosquito.
- B. Prophylaxis, i.e. prevention of infection.
- C. Therapy, i.e. treatment of infection in the Patient.

A. ELIMINATION OF ANOPHELES :-

If the Anopheles mosquitoes are completely destroyed, the infection from one person to another can be checked. It is achieved by using the following methods :-

1) ELIMINATION OF BREEDING PLACES :-

(a) The mosquito larval & pupal must develop in water; therefore, elimination of breeding places is of primary importance.

(b) Drains and septic tanks must be properly maintained. Swampy areas, marshes and stagnant water, such as Pools, Ponds, Pits and open ditches must be drained off.

(c) Water should also be prevented from standing in gutters, drains and depressions.

(d) If possible, the breeding grounds may be filled up.

(e) The bushes & shrubs should be cleared off.

(f) Open drains should be closed or made underground.

2) DESTRUCTION OF LARVAE & PUPAE :-

It is easier and more convenient to kill aquatic larval & pupae than the winged adults of the mosquitoes.

@ Proper drainage :-

The young stages of mosquitoes can be prevented by not allowing the water to stand in gutters, drains, streams, ditches etc.

@ Oil Screens :-

The larval & pupal may be killed by covering or spraying the surface of water with Petroleum or Paraffin oil & Crude or Kerosine oil.

These substances produces a thin film of oil on the surface, so that the larvae and pupal die due to suffocation & lack of respiration.

@ Chemical Larvicides :-

oil solution or emulsions of DDT, DDD & benzene hexachloride are effective larvicides that kill the mosquito larvae & pupal by poisoning as well as suffocation.

@ Biological Methods :-

Larvicide fishes like stickleback minnows, trouts, etc. should be introduced in the ~~amamental~~ fountains, ditches, ponds lakes, canals, tanks etc.

Aquatic nymphs & adult insects (dragon flies), which are natural enemies of mosquito, should be encouraged.

Aquatic insectivorous plants, such as bladder wort (Utricularia) can also devour the larval & pupal of mosquito.

3. DESTRUCTION OF ADULT MOSQUITOES :-

(a) By traps & killing by hands.

(b) Fumigation :-

Sulphur, Pyrethrum, cresol, tarcamphor or other fumes. The smoke of garlic is now considered to be effective in driving the mosquitoes out.

(c) Spraying :-

Mosquitoes can be killed inside human dwellings by using mosquito-bombs or by occasionally spraying them with DDT, flit, gammexane, Pyrethrum & other insecticides.

(d) Sterilization :-

Sterilization has also been effective in controlling mosquito population in some part of the world (Particularly Japan).

(e) Genetic Control :-

Prof. Hannes Laven of West Germany found in 1974 that if a Paris female mosquito (*Culex fatigans*) was crossed with a Hamburg male mosquito, the egg laid would never hatch. This gave rise to his theory of "incompatibility", that certain strains of mosquitoes when crossed can not breed.

B. PROPHYLAXIS or PREVENTION OF INFECTION

1. Defence against mosquito bites :-

(a) The houses should be built on high ground, having good drainage and away from vegetation and marshy places.