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NOVEL DRUG DELIVERY SYSTEM: DESIRED FEAT FOR TUBERCULOSIS

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ABSTRACT

The novel durg delivery system plays very important role in the pathogenesis of the tuberculosis. Now a day's recent advances in the understanding of pharmacokinetics and pharmacodynamics behaiviour of the drug have offer a more rational approach to the development of novel drug delivery system. It has led to the placement of Mycobacterium Tuberculosis on the National Institute Of The Allergy and Infectious Disease (NIAID) list of biodefence and emerging infectious disease threats agents. A deeper understanding of the process will assist in the identification of the host and myocardial efforts invoved and provide targets for therapeutics stratergies against tuberculosis. In this article presents a view on the pathogenesis of the tuberculosis and it's diverse manifestation. The present review give information regarding various technique used for improving safety and health with the help of the novel drug delivery system. Tuberculosis is leading killer of the yong adults worldwide and global stratergies. There are an urgent need for new antimicrobial drugs, and in particular for novel agents that will shorten the duration of tuberculosis chemotherapy, or overwise drug resistant stains of the causative agents, mycobacterium tuberculosis.

KEYWORD: Tuberculosis, Noval drug delivery system, mycobacterium tuberculosis, therapy.

INTRODUCTION

The Tuberculosis (TB) is a contaginious infectious illness caused by species having a place with the mycobacterium tuberculosis complex.

Tuberculosis (TB) is an intracellular disease infecting approximetly 1 min 3 people throughout the world and causing over 1 miilion deaths annually. There are mainly two types, In the lattent TB, microorganisms stay indolent in the body.

The following pie chart shows that the designation of tuberculosis by various renowed scientists.

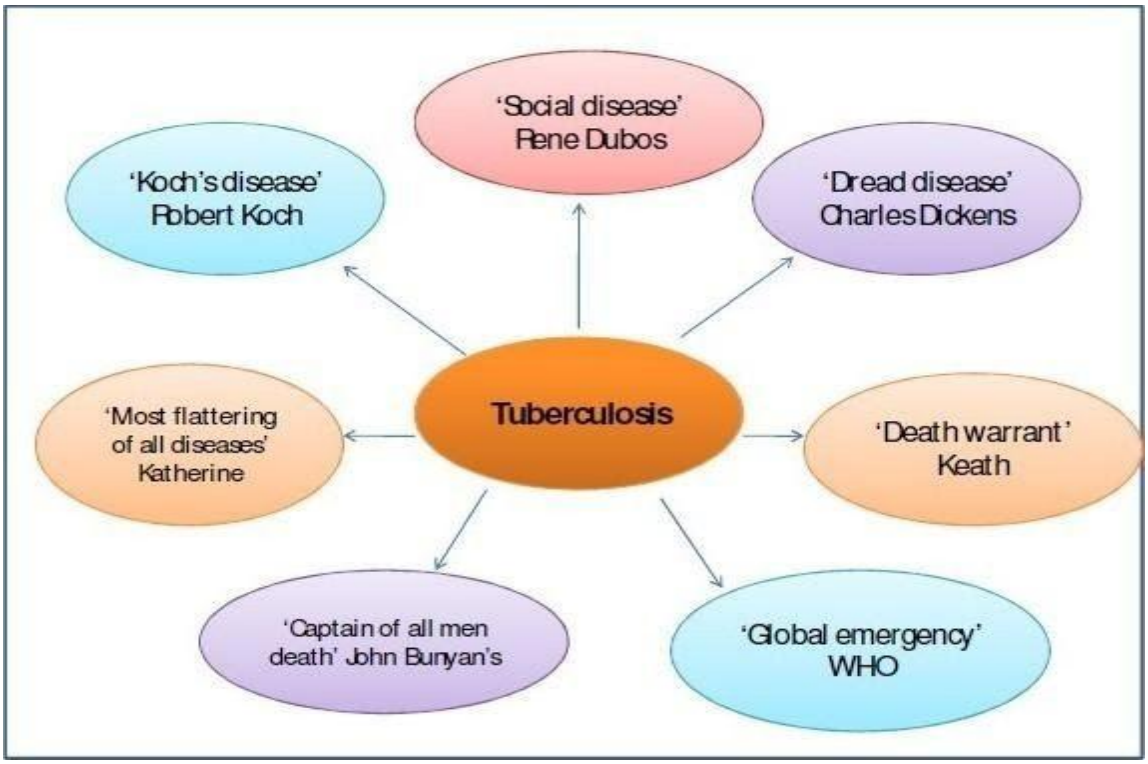

Figure- Designation of tuberculosis by various renowned scientists.

The clinical management of tuberculosis still remain a difficult task. A number of tuberculosis endemic areas are beings covered for the anti-turbercular treatment (ATT) under directly obsered treatment (DOT). Short course of DOT program of World Health Oraganization (WHO) has not been completely sucessful in controlling TB and major burden in the developing countries of indian subcontinent and aferica.

The synergistic pathology of co-infection eith human immuno defficency virus has fulled the disease, as well as continued resistance of Mycobactrium tuberculosis stain to multiple antibiotics is caused for physician armamatrium for testing and prevented tuberculosis being limited. It is the most comman opportunitics infection in Acquired-Immuno Deficiency Syndrome (AIDS).

The following cycle indicate the description of Tuberculosis.

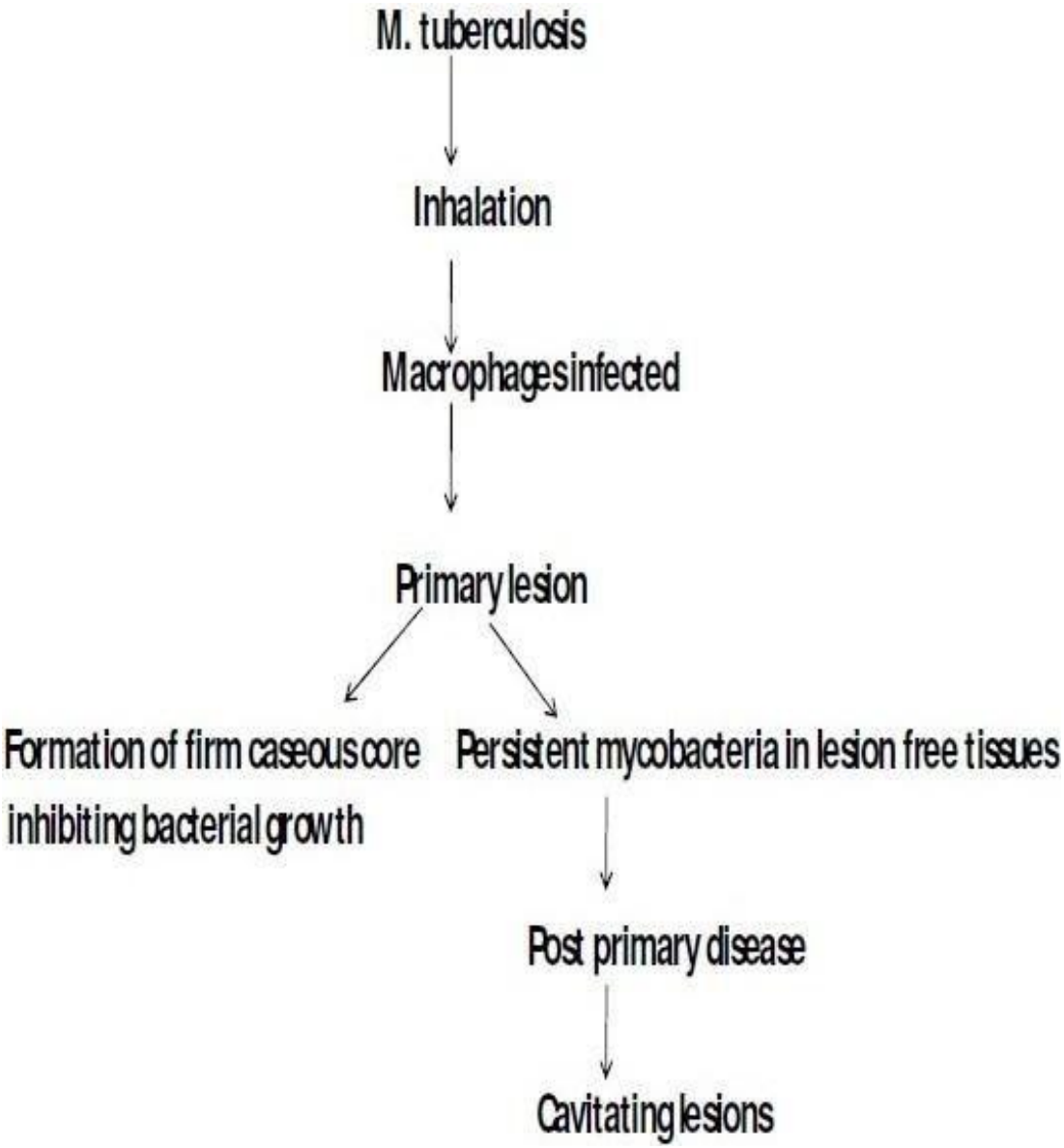

Figure: Description of Tuberculosis.

There are mainly 60 spieces of the mycobacterium but the most are saprophytic inhalants of soil. Tuberculosis is an infectious diseases caused by thr Mycobacterium tuberculosis (in human mainly) is a microscopic, rod shaped bacterium.

Organism	Host	Source	Disease
M. tuberculosis	Diseased persons	Infective droplets	Tuberculosis
M. bovis	Diseased cows	milk	Intestinal or tonsillar lesions
M. avium	No virulence in normal host		Disseminated infections
M. intracellular	Patients with AIDS		Disseminated infections

M.- Mycobacterium

Figure: Causative agents, host, source, and the disease.

Pathogenesis

The pathogenesis of tuberculosis is a complex and its manifestiation are diverse, reflecting a lifetime of dynamic interaction between mycobacterial virulence factor and human immune system.

Attributes of the bacteria are:

Modifies the pathogosome maturation in order to enhance its intracellular survival.

Alteration in Rab GTPase protein composition.

Exclusion of vascuolar protein ATPase with consequents lack of acidification.

Retension of a protein Tryptophan aspartate containing coat TACO.

The fallowing figure shows the transmission and perisistance of Mycobacterium.

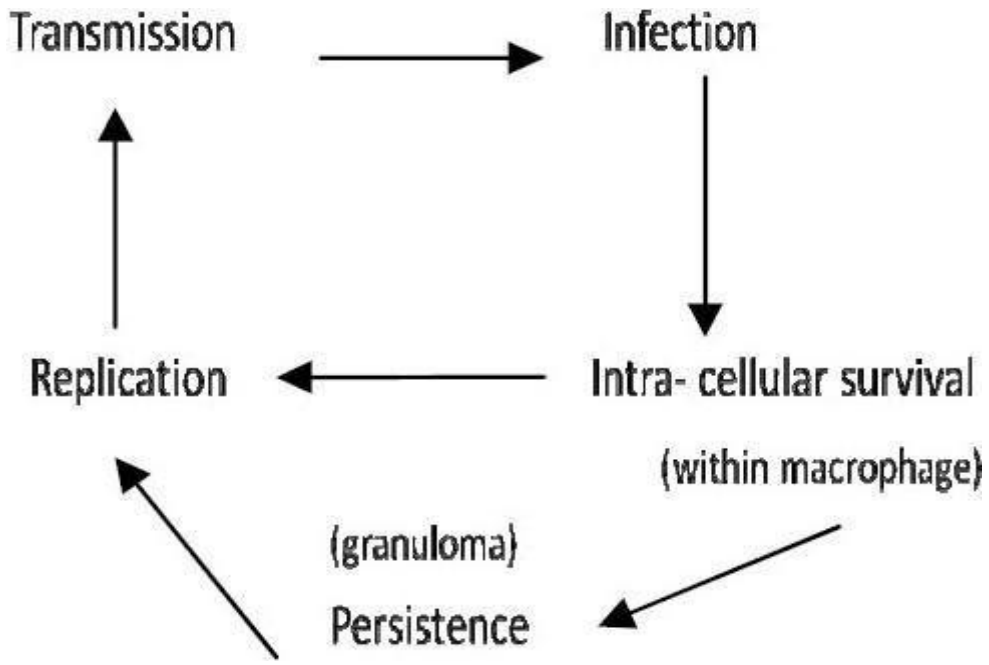

Figure- The transmission and perisistance of Mycobacteria.

Therapy

The history of tuberculosis changed dramatically with the introduction of the antitubercular agents. The drug discoververs and the year of invention with the interference are listed below.

TB prevention and control takes two parallel approaches. In the first, peoples with TB and their contacts are identified and then treated. In the second approach, children are vaccinated to protect from the TB. Unfortunately, no vaccine is available that provide reliable protection for adults. However, in tropical areas where the level of species of mycobacteria are high, exposure to non tuberculous mycobacterium gives some protection against TB. The world Health Oraganisation (WHO) declared TB a global health emergency in 1993 and the stop TB partnership developed a global plan to stop Tuberculosis that aims to save 14 million lives between 2006 and 2015 since humans are only host of Mycobacterium tuberculosis, eradiction would be possible : a goal that would be helped greatly by an effective vaccine.

The standard therapy regmine for uncomplicated drug sensitive TB: Isonazid (ISH) (5mg/kg) maximum upto 300mg /kg. Most side effects of the anti-tubercular drugs are minor in nature.

Novel delivery system

Inhalation of aerosolized drugs is a well established modality in the treatment of localized disease states within the lungs. Example of few promising candidates are –

(1) Nanoparticles and microparticles (2) Liposomes

(3) Niosomes (4) Biodegraded microsphere (5) Nanocapsule

RESULT

The noval drug delivery system reduces repeated administration to overcome non – compliance and also used to increase the therapeutic value by reducing toxicity and increasing the bioavailability. The novel drug delivery system plays an important role to cure the tuberculosis disease.

Hence this review indicate that the noval drug delivery system is desired feat of tuberculosis disease(treatment).

CONCLUSION

In developing and undeveloped countries, infectious disease are formost issue of health concern. Tuberculosis has very big impact on developing nations.

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