

Etiology and Epidemiology of Trachoma: Transmission Effectiveness and Treatment Methods

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DESCRIPTION

Trachoma is a chronic infectious disease of the eye caused by the bacterium *Chlamydia trachomatis*. It is the leading cause of infectious blindness worldwide, predominantly affecting impoverished communities in parts of Africa, Asia, the Middle East, and Latin America. Trachoma spreads through direct contact with eye discharge from infected individuals, or indirectly through contaminated clothing, towels, and flies.

Etiology

The trachomatis bacteria, which causes trachoma, spreads from infected to uninfected people through a variety of channels, including hand-to-eye contact, direct eye-to-eye contact, indirect transmission through contaminated objects (fomites), and transmission made easier by flies that are looking for blood. The infection cycle is prolonged by these circumstances, which encourage the development and survival of trachomatis bacteria in communities. Determining the underlying causes of trachoma is essential to creating focused interventions to end the disease's progression, treat persistent infections, and lessen its long-term effects.

Epidemiology

Visual impairment or blindness results in a worsening of the life experience of affected individuals and their families, who are normally already amongst the poorest of the poor. Women are blinded up to 4 times as often as men, probably due to their close contact with infected children and their resulting greater frequency of infection episodes.

Causes and transmission

Trachoma is caused by repeated infections with *Chlamydia trachomatis*. The bacteria infect the conjunctiva (the membrane covering the white part of the eye and the inner eyelid).

Touching the eyes of an infected person. Sharing contaminated items like towels and clothes. As the infection progresses, it

causes eye pain and blurred vision. If the infection is untreated, scarring occurs inside the eyelid. This leads to the eyelashes turning inward toward the eye. This condition is called trichiasis. The eyelashes brush and scratch against the cornea, the clear, dome-shaped window at the front of the eye. This continual irritation turns the cornea cloudy. It can lead to the development of corneal ulcers and vision loss.

Diagnosis

Diagnosis of trachoma involves clinical examination of the eyes. Healthcare providers look for signs of inflammation, follicles, and scarring in the conjunctiva. In some cases, laboratory tests such as Polymerase Chain Reaction (PCR) can be used to detect *Chlamydia trachomatis* DNA in eye swabs.

Treatment

The WHO has implemented a strategy known as SAFE to treat and control trachoma. SAFE stands for surgery, antibiotics, facial cleanliness, and environmental improvement.

Surgery: Surgical intervention is necessary for individuals with advanced trachoma (trachomatous trichiasis) to prevent eyelashes from rubbing against the cornea. This procedure, known as lamellar tarsal rotation, corrects the position of the eyelid.

Antibiotics: Antibiotic treatment targets the bacterial infection. The WHO recommends mass drug administration of azithromycin, a single-dose oral antibiotic, to entire communities in endemic areas. Tetracycline eye ointment is an alternative where azithromycin is unavailable.

Facial cleanliness: Promoting regular face washing helps reduce the transmission of trachoma. Educating communities on hygiene practices is essential to prevent the spread of infection.

Environmental improvement: Improving access to clean water and sanitation reduces the prevalence of trachoma. Measures include ensuring clean water for washing and reducing fly populations through better waste management and sanitation.

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CONCLUSION

Trachoma is a preventable and treatable disease, yet it remains a significant cause of blindness in many developing regions. The implementation of the SAFE strategy has proven effective in

controlling and eliminating trachoma in several endemic areas. Continued efforts in public health education, environmental improvements, and sustained antibiotic distribution are important to achieving the global goal of eliminating trachoma as a public health problem.