Out gram positive, coccus shaped organism that

Environment

Out of all the staphylococcal species, Staphylococcus aureus (S. aureus) is themost pathogenic bacteria. Endocarditis, brain and renal abscess, toxic shock syndrome, and Staphylococcal scaled skin syndrome are just some of the harmful diseases thatare known to be caused to humans by these mucus membrane colonizers (Madigan& Brock, 2015). Staphylococcus aureusis a Gram positive, coccus shaped organism that is potentially pathogenic. Itis a large (2-3um) bacteria known for being pyogenic. It is determined thatabout 30-40% of individuals are colonized by S. aureus. S.

aureus is able persist and causeinfection due to the large number of cell surface virulence factors it has. Thesecell wall virulence factors include peptidoglycan and techoic acids that areable to produce many secreted factors helping them to persist. The cell surfacestructures of S. aureus are alsoinvolved in damaging the host and also form protection to the organism from thehost’s immune system.

(Schaechter, 2013) Humansare the major reservoir for S. aureus. They colonize the anterior nares, mucus membranes of humans and as well astransient on skin, oropharynx, vagina, and feces. One of the reasons that S. aureus is dangerous is because it isable to spread from person to person via direct contact (Schaechter, 2013). S. aureus can be spread byairborne droplets from an infected person who coughs or sneezes. It is alsofoodborne and causes severe food poisoning when contracted.

Although normallyknown to colonize mucus membranes, S. aureus can penetrate into deeper tissue if the skin mucous membrane isdamaged. It is considered non-invasive as it requires wounds to move from outto in.

There are different mitigationstrategies to limit S. aureus infections based on the source ofinfection. In order to prevent and control Staph infections, proper hygiene ismost important. Making sure that hand washing methods and showering daily isessential in preventing the spread of the bacteria. Due to its ability topenetrate through damaged skin, it is important to make sure that wounds are bandageduntil they are fully healed.

Avoiding the sharing of personal items such astowels and clothing is another way to prevent the spread for the bacteria. Interms of contracting the infection through food sources, it is important tomake sure that food handlers wash their hands before handling food. Foodhandlers should not prepare food if they have nose infections, wounds, or skininfection. Food should be appropriately refrigeratedas the pathogen multiplies rapidly in room temperature (Foodsafety.

gov, 2009). Poor hygiene can enhance the entry of theorganisms as it contributes to a moist environment for them to thrive on. Poorhygiene is suitable for colonization and macerations of skin allowing entry of S.

aureus to move into deeper tissue. Regardless of the infection source, proper hygiene methods should be followedto minimize the spread of the bacteria. (Schaechter, 2013) S. aureus infections are treated usingantibiotics. S. aureus is sensitiveto semi synthetic penicillin.

However, methycillin resistant S. aureus (MRSA) is resistant to bothpenicillin and cephalosporin. Therefore, these strains require treatments withvancomycin. Vancomycin is considered the last line of defense because

it has anarrow therapeutic dose. There have however been known strains vancomycin-resistantS. aureus (VRSA).

Drug cocktails areused to treat VRSA. Clindamycin has also shown some effectiveness against S. aureus.

The most difficult method fortreatment with S. aureus can be IVimmunoglobin where it won’t kill the microorganism but will target the enzymes produced.(Finks, n. d.)