



Evaluation of throat infection causing pathogens isolated from intensive care unit

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ABSTRACT

Throat infections are very common and it is considered that streptococcus are common reason of throat infections but incidence of viral infection are more commonly observed. Confusion between viral and streptococcus infections leads to improper use antibiotics. The main objective of study is to evaluate the most common pathogen found in sputum and throat sample which causes throat infections. Observation shows that sputum contain different type of component like W.B.Cs, epithelial cell, pus cell, yeast cell, normal flora and pathogen. W.B.Cs and epithelial cell found most commonly. Different type of pathogen found in sputum and throat samples, in which streptococcus were found most commonly. 11.11% streptococcus viridans, 7.4% S. pneumoniae, 7.4% pseudomonas aeruginosa, 1.85% candida species, 1.85% coagulase negative staph, 1.85% aspergillus species and 1.85% E.coli are found. Streptococcus viridans are most common pathogen found in sputum and throat sample, but it is not found alone. Most commonly S.pneumonia and other streptococcus species are found with S.viridans, so it is not confirmed which pathogen is responsible for throat infection.

Keywords: Sputum, throat infection, pathogen, antibiotics, epithelial cell, W.B.Cs.

INTRODUCTION

Throat infection is a common disease. Usually the symptoms of throat infection are fever, headache, pain in throats and neck, running nose and coughing. [1] It is consider that streptococcus pathogens are most common cause of throat infection especially group A streptococcus.[2,3] But the actual percentage of the population who have streptococcal infection is not known.[4] Most commonly doctors prescribe antibiotics on physical examination and on the basis of patient's complaint and does not diagnose properly which increases the resistance to antibiotics and increases the rate of infection. [5]

It is considered that viral throat infections are most common than streptococcal infection, about 95% patients have incidence of viral infections [6,7]. People also have complaint of sputum in throat infection. Sputum is produced by mucous membrane and it is brought up by coughing. Increased secretion can block the airway and can limits the airflow, this condition can worsen inflammation which results retained mediators and inflammatory cell. [8]

Sputum can be colourless or coloured. Coloured sputum is considered a clinical sign of bacterial infection presence, that's why in acute respiratory infections antibiotics are prescribed because in this condition the colour of sputum is yellow and green. [9-11] The treatment of choice for throat infections are penicillin but amoxicillin is better than penicillin. Those patient who are allergic to penicillin, erythromycin and 1st generation cephalosporins are recommended to them. [12] Corticosteroids reliefs pain effectively in throat infections along with the antibiotics therapy. [13] Early prescription of antibiotics can again increases the chances of throat infections in future [14].

The main objective of this research is to find out most common pathogen causing throat infection at intensive care unit patient particularly in pediatric patients found in sputum and throat sample, which can help in improving the treatment of this infection.

METHODOLOGY

For the purpose of this retrospective study about 108 patients were evaluated with their culture sensitivity reports of patients from intensive care units from the sample of throat and sputum

observed carefully to isolate most common pathogen causing throat infection particularly in pediatrics wards in search of the effective antimicrobial treatment option against isolated pathogens. As irrational practice of empirical therapy is very common in our Pakistan [15].

RESULT AND STATISTICAL ANALYSIS:

To achieve the objective of this study 108 sputum and throat sample has been analysed. During the research different components were found in sputum and throat sample. 53.70% epithelial cells were found, 51.85% W.B.Cs, 29.60% pathogens, 11.11% normal flora, 3.70% yeast cell and 1.85% pus cell were found in sputum and throat samples.

Table No. 1: Different component found in sputum and throat sample:

DIFFERENT COMPONENT	% FOUND IN SAMPLES
Epithelial cell	53.70%
W.B.Cs	51.85%
Pathogens	29.60%
Normal flora	11.11%
Yeast cell	3.70%
Pus cell	1.85%

On further analysis, different type of pathogen in samples were observed. 11.11% Streptococcus viridians were found, 7.4% streptococcus pneumoniae, 7.4% pseudomonas aeruginosa, 1.85% candida species, 1.85% coagulase negative

staph, 1.85% aspergillus species and 1.85% E.coli are found. According to the research S. Viridians are found most commonly, then P. Aeruginosa and S. Pneumoniae are the second most common pathogen found in sputum and throat sample.

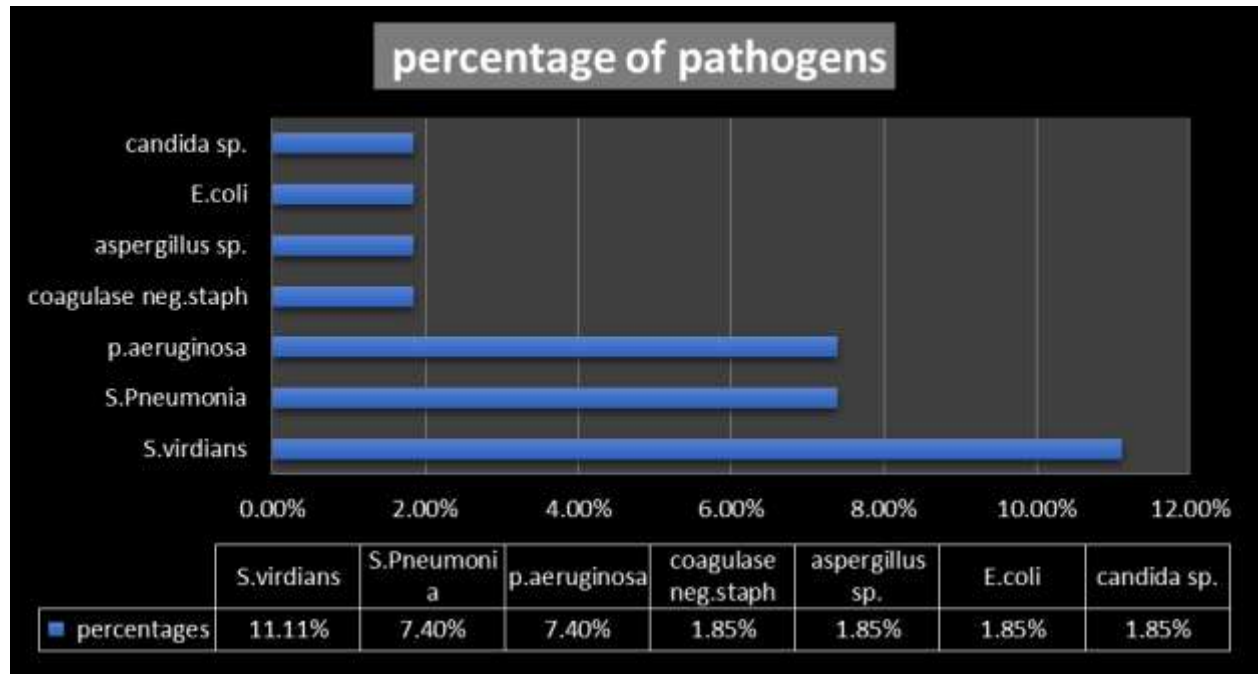


Figure 1: % of different pathogens found in sputum and throat samples.

DISCUSSION

According to the results, it has been observed that sputum contains different type of component like W.B.Cs, epithelial cell, pus cell, normal flora, yeast cell and pathogen. Result shows that W.B.Cs and epithelial cells are found usually. Pathogens are also found in sputum but not every sample of

sputum contains pathogen. So, doctor should avoid the over prescription of antibiotics or doctor should confirm that either patient have any pathogenic disease or not. Sometimes it is observed that patients forced the doctors to prescribe them antibiotics. The observation shows that 11.11% Streptococcus viridians, 7.4% streptococcus pneumoniae, 7.4% pseudomonas aeruginosa,

1.85% candida species, 1.85% coagulase negative staph, 1.85% aspergillus species and 1.85% E.coli are found in sputum and throat sample. Various studies suggested as nosocomial infection are most common source of pathogenesis at intensive care units [16]. Streptococcus bacteria are found most commonly in which streptococcus viridans have highest percentage and then streptococcus pneumoniae and P.aeruginosa are most common pathogen isolated from intensive care units [17].

Streptococcus viridans are commonly found in oral cavity and considered as normal flora but, if this pathogen enters in blood stream it can cause endocarditis and other diseases, and it is resistant to many antibiotics. S.Viridans are not found alone in sputum and throat samples, it is usually found with other streptococcus species, most commonly with S.pneumoniae. It is also observed with P.aeruginosa. So, the main reason of throat infections can be other pathogen found with S.viridans.

In previous studies, it is considered that S.pyogenes is most commonly found in sputum and throat samples but in this research S.pyogenes is not observed, it may be due to less availability samples. So, it can be the limitation of this study. Following points are the summary of this study:

- Not every sputum and throat sample contain pathogen.
- W.B.Cs and Epithelial cell found most commonly.
- S.Viridans found most common pathogen in sputum and throat samples, but not found alone.
- S.Viridans may not be the reason of throat infection, other pathogen can be the reason found with S.Viridans.
- Early prescription of antibiotics should be avoided, because less percentage of pathogens found in samples.

CONCLUSION

From this research, it is concluded that the most common pathogen found in sputum and throat samples are S.Viridans, but it is not found alone. Most commonly S.pneumonia and other streptococcus species are found with S.viridans, so it is not confirmed which pathogen is responsible for throat infection. The overall percentage of pathogen found in sputum and throat sample is very less so the proper use of antibiotics should be maintained to treat throat infections.

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