

## Summary

The present study aimed to investigate some of the virulence factors and antibiotic susceptibility test of *Streptococcus pyogenes* and *Staphylococcus aureus* isolated from patients infected with Pharyngitis and Tonsillitis.

Two hundred and seventy six swabs (included 65 Pharyngitis and 211 Tonsillitis) were collected from 142 males and 134 females ( $P > 0.05$ ), infected with Pharyngitis and Tonsillitis, whom admitted to ENT unit in Al-Habbuby Teaching Hospital in Nasiriyah City, Thi-Qar province, Iraq during the period from November 2014 to May 2015.

The results of the present study showed that the age group of (<10 years) recorded the highest infection rates compared with other age groups with 70(25%) cases ( $P \leq 0.05$ ). Also, urban areas recorded the highest infection rate in comparison to rural areas with a percentages of 86.23% and 13.77%, respectively ( $P \leq 0.05$ ).

After culture, microscopic, biochemical and serological tests were performed, 96 isolates were identified, which included 34(35.42%) isolates of *Strep. pyogenes* divided to 21(61.76%) and 13(38.24%) isolated from Pharyngitis and Tonsillitis, respectively. On the other hand, 62(64.58%) of *Staph. aureus* were isolated which showed the highest rate in Tonsillitis with 60(96.77%) isolates in comparison to Pharyngitis with 2(3.23%) isolates ( $P \leq 0.05$ ).

Some of virulence factors in both species were detected by using polymerase chain reaction (PCR) technique, that included Streptococcal pyrogenic exotoxin (SPE) and Streptococcal superantigen gene (*spe A*, *spe B*, *spe C* and *ssa*) in *Strep. pyogenes*. While, in *Staph. aureus* Methicillin resistant gene (*mec A*), diagnostic gene (16S rDNA) and capsular polysaccharides which encoded to *cap-5* and *cap-8* were detected. The present study results showed that *spe B* gene was prevalence in 14 isolates

(41.18%) followed by *ssa*, *spe A* and *spe C* genes with a percentages of 35%, 29.41% and 14.71%, respectively. On the other hand, 93.55% of *Staph. aureu* isolates were positive to *cap-8* gene. Whereas, 88.71%, 87% and 32.25% of isolates were positive to 16S rDNA, *mecA* and *cap-5*, respectively.

Susceptibility test results against different antibiotics showed that *Strep. pyogenes* isolates were completely sensitive to both Vancomycin and Ceftriaxon, followed by Gentamycin and Penicillin with a percentage of (98%) for both. Whereas, these isolates were completely resistant to Ampicillin and Amikacin. On the other hand, all *Staph. aureus* isolates were sensitive to Clindamycin and Amikacin, and resistance to  $\beta$ -lactam antibiotics (Ampicillin and Augmentin) (Amoxicillin/Clavulanic acid). Both bacteria showed variable susceptibility to other antibiotics.

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