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ORIGINAL ARTICLE

Determinant of antibacterial failure in patients with head and neck infections of odontogenic origin

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ABSTRACT:

Introduction: Odontogenic infections are polymicrobial in origin and can be life-threatening. Antibacterial failure is an important issue in the treatment of odontogenic infections.

Aim: This study aimed to determine the factors associated with antibacterial failure in patients with head and neck infections of odontogenic origin.

Material and method: This retrospective epidemiological study was performed using data collected from 229 patients with head and neck infections of odontogenic origin who were operated on in Shahid Rajaee hospital from March 2014 to December 2019.

Results: 123 (53.7%) patients were female and there were 106 (46.3%) males. The mean age ± SD was 33.01 ±13.37 years (range 7 to 80). The most common offending teeth were lower molars (81.7%) and lower premolars (5.7%). The most common site of infection was the submandibular area (36.4%) followed by the buccal (20.4%) and pterygomandibular (17.1%) regions. The most common pathogen was *Streptococcus haemolyticus*. The length of hospitalization was higher (4.66 days) in patients with failure of treatment compared to those without it (6.00 days) (P = 0.002). A combination of penicillin G and metronidazole was prescribed for all patients with failure of treatment compared to 57.6% in patients without failure of treatment (P = 0.002). There was no statistically significant difference between the two groups regarding age, duration of illness before hospitalization, WBC, gender, history of chemotherapy, hypertension, smoking, pregnancy, alcohol consumption, diabetes mellitus, the rate of fever, trismus, dysphagia, malaise, antibiotic before hospitalization, or surgical approach.

Conclusion: Possible determinants in this study were not associated with antibacterial failure. Further studies should be conducted to investigate this relationship.

KEYWORDS: antibacterial failure, Iran, odontogenic infections

ABBREVIATIONS

CT – computed tomography
SD – standard deviation
WBC – white blood cell

INTRODUCTION

Odontogenic infections affect the tooth and its supporting structures and are polymicrobial in origin; they are caused by aerobic and anaerobic microorganisms [1]. Despite huge advances in medical sciences, many patients still suffer from odontogenic infections in the world [2]. Rapid documentation of infections and appropriate treatment are critical due to life-threatening complications like airway obstruction, sepsis, necrotizing fasciitis, cavernous sinus thrombosis, and mediastinitis [3]. The most prevalent presentation of patients admitted due to odontogenic head and neck infections was trismus, toxic appearance, and dysphagia [4].

The source of odontogenic infection could be dental caries, gingival and periodontal disease. Many odontogenic infections are self-limiting. Though, some of them may spread into the adjacent spaces and cause more serious infections [5]. Antimicrobial resistance is an increasing global healthcare concern and rapid diagnosis of microorganisms is crucial [6]. Broad-spectrum antibiotics are widely used to treat infections [7]. There is no consensus between different countries on treatment protocols, and intravenous penicillin G, metronidazole, clindamycin, amoxicillin-clavulanic acid, or amoxicillin-sulbactam are the most commonly prescribed antibiotics [8].

The present study has some strengths. We gathered data from a large group of patients from a referral centre. This increases the external validity of data. On the other hand, there are some limitations such as the lack of follow-up data as it was a retrospective study. We suggest further studies with a prospective design.

CONCLUSION

Based on information obtained in our analysis, possible determinants in this study were not associated with antibacterial failure. Further prospective studies should be conducted to investigate this relationship.

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