Descriptive Epidemiological, Clinical and Microbiological Features of Infective Endocarditis in Saudi Arabia

Mohamed Nabil Alama*

Department of Medicine, Faculty of Medicine, King Abdulaziz Hospital, King Abdulaziz University, Jeddah 21589, Saudi Arabia

Abstract

Objective: The present study describes the microbiological, clinical, echocardiographic and complications of infective endocarditis (IE) at the King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia. Retrospective epidemiological study from year 2016 to 2017 for all patient whereas diagnosis with infective endocarditis. The inclusion criteria any patient diagnosed with IE among adult patient and the exclusion criteria pediatric patient. Data was collected demographic, clinical and microbiology information and all data were entered to SPSS version 21 considering patient confidentiality. Continuous variables were compared with the Mann–Whitney U test and categorical variables with the x2 test or Fisher’s exact test. In order to assess linearity, the quadratic age effect has been introduced in the model. The total number of patient diagnosed with IE was 28 cases, the average age is 48 (±18) years old, IE most common in male gender 21 (75%) compared to female 7 (25%), prevalence of disease higher among non-Saudi 21 (75%) compared to Saudi 7 (25). The patient clinical classification were acute (53%) phase are more frequent than sub-acute (48), moreover those underwent medical treatment are (93%) compared to surgical treatment. All the differences were statically almost significant ($P = 0.06$).

Conclusion, my results demonstrate the epidemiological, microbiological and clinical profiles of IE in a tertiary hospital in Jeddah, Saudi Arabia. The highest risk factors were surgical intervention and heart disease and lower among patient with prosthetic heart valve.

Keywords: Microbiological features; Epidemiology; Infective endocarditis; Saudi Arabia

Introduction

Infective Endocarditis (IE) is a microbial infection of heart valves and its endothelial lining which is considered as a life-threatening disorder [1-4]. Although the IE rate was low, the disease was still dangerous due to of hard diagnosis and treatment with high mortality. The occurrence of IE varied greatly. In countries with high industries, and higher degenerative heart disease a low rheumatic heart disease have resulted in aging patient, and high incidence of infections of Staph. Aureus, which is transmitted basically from healthcare [5-7]. The identification rate of the causing agents in the developed countries is recorded to be very high, while it is lower in the developing countries [8-12]. IE has different etiological factors, manifestations clinically, and treatment course in different gender and ages. In study carried out [13-15] on S. aureus, which has become the main causes in the developed world, leading to sever type of the disease in aged patient. Diagnosis and treatment of IE is still a challenge for physicians. Group of patients with the worst prognosis is treated by cardiologist and infectious diseases physician etiologic agent cannot be identified in a substantial number of patients. There is lacking information about the prevalence of IE &causes from Saudi Arabia, So, the present study describes the microbiological, clinical, echocardiographic and complications of infective endocarditis (IE) at the KAUH hospital, Jeddah, Saudi Arabia.

Setting

KAUH is tertiary and teaching hospital affiliated to medical school in Jeddah city at Saudi Arabia. The bed capacity 750 which including all services total number of discharge patient per year was 45,182 Patients.

Methodology

Retrospective epidemiological study from year 2016 to 2017 for all patient whereas diagnosis with infective endocarditis. The inclusion criteria any patient diagnosed with IE among adult patient and the exclusion criteria pediatric patient. Data was collected demographic, clinical and
microbiology information all data were entered to SPSS version 21 considering patient confidentiality. Continuous variables were compared with the Mann-Whitney U test and categorical variables with the x2 test or Fisher’s exact test. In order to assess linearity, the quadratic age effect has been introduced in the model, and it was not found statistically significant.

**Result**

The total number of patient diagnosed with IE was 28 cases, the average age is 48 (±18) years old, IE most common in male gender 21 (75%) compared to female 7 (25%), prevalence of disease higher among non-Saudi 21 (75%) compared to Saudi 7 (25%). The patient clinical classification were acute (53%) phase are more frequent than sub-acute (48), moreover those underwent medical treatment are (93%) compared to surgical treatment (Table 1). All the differences were statically almost significant (P = 0.06). Table 2 shows patient diagnosed IE with Co-morbidity the HTN and DM are common (12 and 11) respectively however these differences statistically significant (P= 0.05). Sign and symptom were shown in table 3 that anorexia (55%) followed by weightless (50%), shortness of breath (48%) were common among IE patient and these differences were statistically significant. Table 4 present the most common organism caused IE were *Staphylococcus arues* (40%) followed by *Streptococcus viridans* (30%). The risk factor associated IE presented in table 5 those cases under went TTE procedures (88%) followed surgical intervention (28%) where high risk to have IE compared to other factor, these differences was statistically significant. Table 5 shows the complication affected patient with IE were valve dysfunction (83%) followed by vegetation (55%). Table 6 shows the laboratory result that patient with IE has high CRP (70%) and high ESR (65%).

**Discussion**

IE means surface infection of cardiac endothelium suggesting physical presence of microorganisms in the lesion and heart infection. IE is a serious and life-threatening condition, which may lead to
death if untreated. Today, despite the medical and technological advancements in the field of pharmaceutical therapies of microbial infections and advanced surgical procedures, the mortality rate related to IE has not decreased. This disease is more dominant in intravenous addicts and cardiovascular patients, specifically heart valve replacement patients [16]. Despite its rare occurrence, infective endocarditis (IE). In the general population, IE is generally low and uncommon disease associated with significant morbidity and mortality and appears to vary greatly among different populations even within the same country. Its incidence in the present. Multiple factors could have led to variability in IE incidence, including referral and case ascertainment biases, disease misclassification, differences in populations at risk, study designs, and use of different case definitions. IE is an uncommon disorder that was almost universally fatal in the preantibiotic era, and remains a major clinical problem today, despite advances in medical and surgical treatments study on Infective endocarditis: Clinical features and prognosis in a non-teaching hospital and results showed IE remains a severe disease and S. aureus is more often involved. In one study conducted in Italy found the incidence rate of IE is 4.6/100,000/y [17]. In the present study, the highest risk factors were surgical intervention and heart disease and lower among patient with prosthetic heart valve (10%) our finding highest risk factors were surgical intervention and heart disease and uncommon disease associated with significant morbidity and mortality and appears to vary greatly among different populations even within the same country.

References

