



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES<http://doi.org/10.5281/zenodo.3817517>Available online at: <http://www.iajps.com>

Research Article

**EARLY SURGICAL THERAPY OF INFECTIVE
ENDOCARDITIS IN CHILDREN IN PAKISTAN**Afnan Ullah Khan¹, Qaisar Nazeer Khattak¹, Wasim Khan¹¹Khyber Medical College Peshawar.

Article Received: March 2020

Accepted: April 2020

Published: May 2020

Abstract:

Introduction: Infective endocarditis is rare in children but potentially carries high mortality and morbidity. **Aims and objectives:** The main objective of the study is to analyse the early surgical therapy of infective endocarditis in children in Pakistan. **Material and methods:** This descriptive study was conducted in Khyber Teaching Hospital during June 2019 to January 2020. The data was collected from 100 patients of age range 10 to 15 years. Five ml of fasting fresh blood sample was taken from all the patients. Then this blood was centrifuged at 4000 rpm for 10 minutes. **Results:** The data was collected from 100 patients of both male and females. The mean age was 12.52 ± 5.65 years. The mean values of serum ALP (203.92 U/l) and Ca (10.28 mg/dL) was higher in female subjects as compared to the male subjects. The noted in females and positive in male subjects. Significant correlation of CPK ($p = 0.001$) was found with age in females while positive correlation was found for CPK in both the groups with other variables. **Conclusion:** It is concluded that the association between dental procedures and the risk of IE remained insignificant after adjustment for antibiotic use, indicating that dental procedures did not increase the risk of IE.

Corresponding author:Afnan Ullah Khan,
Khyber Medical College Peshawar.

QR code



Please cite this article in press Afnan Ullah Khan et al, *Early Surgical Therapy Of Infective Endocarditis In Children In Pakistan.*, Indo Am. J. P. Sci, 2020; 07(05).

INTRODUCTION:

Infective endocarditis (IE) is an uncommon but potentially devastating disease, with an estimated annual incidence ranging from 2 to 7.9 per 100,000 individuals per year and a short-term mortality of 10% to 30%. Infective endocarditis is rare in children but potentially carries high mortality and morbidity. Few data exist regarding surgical therapy and the associated outcomes in children with infective endocarditis. Through the breakdown of mucocutaneous barriers and induction of bacteremia, dental therapy and other invasive procedures have been linked to seeding of heart valves and the development of IE. Since the publication of the American Heart Association (AHA) guidelines in 1955, it has been conventionally considered appropriate to prevent IE by prophylactic administration of antibiotics before procedures believed to cause bacteremia [1]. However, the evidence supporting the effectiveness of antibiotic prophylaxis was poor, deriving solely from animal studies, case series, and assessments of bacteremia risk. Notably, the AHA guidelines in 1997 did acknowledge that most IE cases are not attributable to bacteremia resulting from certain invasive procedures, but rather random bacteremia from routine daily activities such as tooth brushing or chewing [2], and thus suggesting that prophylaxis may only prevent a small number of cases of IE. These guidelines also recognized the potential adverse effects and medical-legal risks associated with prophylaxis. In the absence of a robust evidence base, growing doubts with respect to this widely accepted practice led to a major revision of the AHA guidelines in 2007, narrowing the indications for antibiotic prophylaxis to a smaller population of at-risk individuals [3]. Furthermore, the 2008 guidelines from the National Institute of Health and Clinical Excellence (NICE) recommended that antibiotic prophylaxis be abandoned in most situations [4].

The AHA Committee had expected such substantial changes to stimulate prospective studies on IE prophylaxis. Recently, a meticulous analysis of epidemiological data by Dayer et al reported a significantly increased incidence of IE in England

(0.11 cases per 10 million people per month) that appeared to correspond with the NICE recommendations to cease antibiotic prophylaxis [5]. These data again urge the use of appropriate clinical trials to re-evaluate the effectiveness of IE prophylaxis. However, a large population base is required to obtain valid results for such an uncommon disease; a multi-centre prospective randomized controlled trial is still lacking. As an alternative approach, investigating the link between dental procedures and the risk of IE may assist in justifying or refuting this practice. Few epidemiological studies have been carried out in this area [6].

Aims and objectives

The main objective of the study is to analyse the early surgical therapy of infective endocarditis in children in Pakistan.

MATERIAL AND METHODS:

This descriptive study was conducted in Khyber Teaching Hospital during June 2019 to January 2020. The data was collected from 100 patients of age range 10 to 15 years. Five ml of fasting fresh blood sample was taken from all the patients. Then this blood was centrifuged at 4000 rpm for 10 minutes. Serum was separated and was analysed for the quantification of serum ALP, CPK and Ca using standard methods.

Statistical analysis

Statistical analysis of the acquired data was carried out using SPSS 21.0 software and Microsoft Excel. Values were reported as mean \pm standard deviation.

RESULTS:

The data was collected from 100 patients of both male and females. The mean age was 12.52 ± 5.65 years. The mean values of serum ALP (203.92 U/I) and Ca (10.28 mg/dL) was higher in female subjects as compared to the male subjects. The noted in females and positive in male subjects. Significant correlation of CPK ($p = 0.001$) was found with age in females while positive correlation was found for CPK in both the groups with other variables.

Table 01: Analysis of ALP, Ca and CPK values of serum

| Gender | Parameter | ALP | | CPK | | Ca | |
|--------|-----------|--------|-------|---------|-------|---------|-------|
| | | r | p | r | p | r | p |
| F | Age | 0.269 | 0.094 | 0.497** | 0.001 | 0.000 | 1.000 |
| | BMI | -0.163 | 0.315 | -0.163 | 0.316 | 0.402** | 0.010 |
| M | Age | 0.012 | 0.943 | 0.205 | 0.204 | -0.217 | 0.178 |
| | BMI | 0.130 | 0.422 | -0.033 | 0.815 | 0.135 | 0.407 |

DISCUSSION:

So far, no prospective, randomized, placebo-controlled trial has been conducted to support or reject the use of antibiotic prophylaxis. Reports of prophylaxis failure and data from some case-control studies have challenged the rationale for prophylaxis that dental procedures increase the risk of IE. In a population-based case-control study of 273 cases of IE, Strom et al reported that MVP, congenital and rheumatic heart disease, and previous valve surgery were risk factors of IE, but not dental treatment [7]. They concluded that few cases of IE could be prevented with prophylaxis even with 100% effectiveness. In another case-control study of 171 cases of IE by Lacassin et al, dental procedures were not associated with an increased risk [8].

The underlying rationale of IE prophylaxis can be summarized as a 3-part theory: bacteremia leads to IE in at-risk patients with valvular or other cardiac abnormalities; bacteremia frequently occurs in consequence of certain invasive procedures [9]; and, as shown in animal studies, antibiotics administered before microbial challenge can reduce the risk of IE [10].

CONCLUSION:

It is concluded that the association between dental procedures and the risk of IE remained insignificant after adjustment for antibiotic use, indicating that dental procedures did not increase the risk of IE.

REFERENCES:

1. Shinebourne E, Cripps C, Hayward G, et al. Bacterial endocarditis 1956-1965: analysis of clinical features and treatment in relation to prognosis and mortality. *Br Heart J* 1969; 31:536.
2. Mandell GL, Kaye D, Levison ME, et al. Enterococcal endocarditis: an analysis of 38 patients observed at the New York Hospital-Cornell Medical Center. *Arch Intern Med* 1970; 125:258-264.
3. Durack DT. Antibiotics for prevention of endocarditis during dentistry: time to scale back? *Ann Intern Med* 1998; 129:829-831.
4. Oliver R, Roberts G, Hooper L. Penicillins for the prophylaxis of bacterial endocarditis in dentistry. *Cochrane Database Syst Rev* 2004; CD003813.
5. Wahl MJ, Pallasch TJ. Dentistry and endocarditis. *Curr Infect Dis Rep* 2005; 7:251-256.
6. Dayer MJ, Jones S, Prendergast B, et al. Incidence of infective endocarditis in England, 2000-13: a secular trend, interrupted time-series analysis. *Lancet* 2014; 385:1219-1228.
7. Porat Ben-Amy D, Littner M, Siegman-Igra Y. Are dental procedures an important risk factor for infective endocarditis? A case-crossover study. *Eur J Clin Microbiol Infect Dis* 2009; 28:269-273.
8. Lacassin F, Hoen B, Leport C, et al. Procedures associated with infective endocarditis in adults A case control study. *Eur Heart J* 1995; 16:1968-1974
9. Chiang CH, Huang WC, Yang JS, et al. Five-year outcomes after acute myocardial infarction in patients with and without diabetes mellitus in Taiwan, 1996-2005. *Acta Cardiol Sin* 2013; 29:387-394.
10. Maclure M, Mittleman MA. Should we use a case-crossover design? *Annu Rev Public Health* 2000; 21:193-221.