BACTERIOLOGICAL AND HISTOLOGICAL PROFILE OF HEART VALVES RESECTED FROM INFECTIVE ENDOCARDITIS PATIENTS

A

DISSERTATION

SUBMITTED TO THE CENTRAL DEPARTMENT OF MICROBIOLOGY

TRIBHUVAN UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN MICROBIOLOGY (MEDICAL)

BY

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2008

RECOMMENDATION

This is to certify that **Ms. Sulochana Manandhar** has completed this dissertation work entitled **"BACTERIOLOGICAL AND HISTOLOGICAL PROFILE OF HEART VALVES RESECTED FROM INFECTIVE ENDOCARDITIS PATIENTS"** as a partial fulfillment of Master of Science Degree in Microbiology under our supervision. To our knowledge, this work has not been submitted for any other degree.

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ABSTRACT

The present study was conducted for bacteriological and histopathological study of heart valves resected from preoperatively treated and intraoperatively suspected infective endocarditis (IE) cases undergoing valve replacement surgery at Shahid Gangalal National Heart Centre from November 2007 to October 2008.

During this study period, 31 heart valve samples resected from 27 patients were studied, 12 of the patients being preoperatively treated with antibiotics for IE and rest 15 of them being intraoperatively suspected for IE. The samples were cultured for the isolation of causative bacteria and examined histopathologically in Hematoxylin-Eosin and Tissue-Gram staining to assess the evidence of infection and inflammation.

Of 31 samples cultured, only three samples were culture positive, of which two were from treated IE cases from which *Staphylococcus aureus* and *Enterococcus faecalis* were isolated and one was from suspected case from which *S. aureus* was isolated. All three isolates were sensitive to Ciprofloxacin and Vancomycin and resistant to Penicillin and Amoxycillin.
Of 21 samples examined histologically, only five (23.80%) samples showed bacteria in Tissue-Gram staining while in Hematoxylin-Eosin staining, six (28.57%) samples showed acute inflammation, four (19.04%) showed chronic inflammation and rest 11 (52.38%) showed no signs of inflammation. Among the samples from suspected cases, majority (80%) of them revealed no signs of inflammation, 10% of samples revealed concealed IE by exhibiting acute inflammation and none of the samples showed bacteria. Among the samples from treated cases, five (45.45%) samples exhibited bacteria with or without acute inflammation, three (27.27%) showed chronic inflammation without bacteria and rest three (27.27%) showed no signs of inflammation. Both culture positive samples from the treated cases revealed bacteria and acute inflammation at histological level.

Keywords: Concealed IE, Histopathology, Infective endocarditis (IE), Inflammation

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LIST OF ABBREVIATIONS

AHA : American Heart Association
ASM : American Society of Microbiology
ASO : Anti-Streptolysin O
BHI : Brain Heart Infusion
BSIs : Bloodstream Infections
CDC : Centers for Disease Control and Prevention
CHF : Congestive Heat Failure
CNE : Culture Negative Endocarditis
CO_2 : Carbondioxide
CONS : Coagulase Negative Staphylococci
DVR : Double Valve Replacement
ESC : European Society of Cardiology
ESR : Erythrocyte Sedimentation Rate
GI : Gastro-Intestinal
gm : Gram
GNB : Gram Negative Bacilli
GPC : Gram Positive Cocci
GU : Genito-Urinary
HACEK : *Haemophilus parainfluenzae, Haemophilus aphrophilus, Actinobacillus actinomycetemcomitans, Cardiobacterium hominis, Eikenella corrodens* and *Kingella kingae*
HCIE : Health Care-associated Infective Endocarditis
HD : Haemodialysis
IE : Infective Endocarditis
Ig : Immunoglobulin
InPt No. : In-Patient Number
IV : Intra Venous
IVDA : Intravenous Drug Abuser
IVDU : Intravenous Drug Use

mcg : Microgram
MDR : Multi-Drug Resistant
µg : Microgram
MHA : Mueller Hinton Agar
ml : milliliter
mm : millimeter
MSA : Mannitol Salt Agar
MVP : Mitral Valve Prolapse
NBTE : Non-Bacterial Thrombotic Endocarditis
NIE : Nosocomial Infective Endocarditis
nm : nanometer
No. : Number
NPHL : National Public Health Laboratory
NVE : Native Valve Endocarditis
PDA : Patent Ductus Arteriosus
PML : Polymorphonuclear Leucocytes
PVE : Prosthetic Valve Endocarditis
RHD : Rheumatic Heart Disease
SAT : Standard Antibiotic Therapy
SGNHC : Shahid Gangalal National Heart Centre
SLE : Systemic Lupus Erythremetosus
STH : St. Thomas Hospital
TEE : Trans-Esophageal Echocardiography
ToF : Tetralogy of Fallot
TTE : Trans-Thoracic Echocardiography
UTI : Urinary Tract Infection

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