

Surgical Intervention of Infective Endocarditis in Intravenous Drug Addicts

An essay

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List of Abbreviations

3D	Three-Dimensional
AVR.	Aortic Valve Replacement
CoNS	Coagulase-Negative Staphylococci
CT	Computed Tomography
CNS	Central Nervous System
E	Enterococcus
FDG	Fluorodeoxyglucose
HACEK	Haemophilus , Aggregatibacter , Cardiobacterium hominis, Eikenella corrodens, Kingella
HF	Heart Failure
HIV	Human Immunodeficiency Virus
I.V.	Intravenous
IE	Infective Endocarditis
IVDA	Intravenous Drug Abuser
LVOT	Left Ventricular Outflow Tract
MIC	Minimum Inhibitory Concentration
MR	Magnetic Resonance
MRI	Magnetic Resonance Imaging
MRSA	Methicillin-Resistant Staphylococcus Aureus
MSSA	Methicillin-Susceptible Staphylococcus Aureus
MSCT	Multi Slice Computed Tomography
MVR	Mitral Valve Replacement
NVE	Native Valve Endocarditis
OPAT	Outpatient Parenteral Antibiotic Therapy
PD	Pharmacodynamics
PK	Pharmacokinetics
PCR	Polymerase Chain Reaction
PET	Positron Emission Tomography
PVE	Prosthetic Valve Endocarditis
S. aureus	Staphylococcus aureus
STS	Society of Thoracic Surgeons
TEE	TransEsophageal Echocardiography
TOE	TransOesophageal Echocardiography
TTE	TransThoracic Echocardiography
TV	Tricuspid Valve
VGS	Viridians Group Streptococci

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Introduction



Introduction

Infective endocarditis (IE) is defined as an infection of the endocardial surface of the heart, which may include one or more heart valves, or a septal defect. Its intracardiac effects include myocardial abscesses and severe valvular insufficiency, which may lead to intractable congestive heart failure. IE also produces a wide variety of systemic signs and symptoms through several mechanisms, including both sterile and infected emboli and various immunological phenomena. [1, 2]

IE generally occurs as a consequence of nonbacterial thrombotic endocarditis, which results from turbulence or trauma to the endothelial surface of the heart. A transient bacteremia then seeds the sterile platelet/fibrin thrombus, with IE as the end result. Pathologic effects due to infection can include local tissue destruction and embolic phenomena. In addition, secondary autoimmune effects, such as immune complex glomerulonephritis and vasculitis. [3]

Types of infective endocarditis

Endocarditis has evolved into several variations, keeping it near the top of the list of diseases that must not be misdiagnosed or overlooked. Endocarditis can be broken down into the following categories:

- Native valve endocarditis (NVE), acute and subacute
- Prosthetic valve endocarditis (PVE), early and late
- Intravenous drug abuse (IVDA) endocarditis. [4]

IVDA infective endocarditis

IVDA is a social, health, and economic burden in developed and developing countries. Overdose, cutaneous complications, pulmonary embolism, infective endocarditis (IE), community - acquired pneumonia, pulmonary tuberculosis, septicemia, and the transmission of blood-borne infections are well-known complications of IVDA, 7.7% of the IE patients were IVDA [5]

IE involves the tricuspid valve is the most frequently affected (60% to 70%), followed by the mitral and aortic valves (20% to 30%); pulmonic valve infection is rare (< 1%). More than one valve is infected in 5% to 10% of cases, *Staphylococcus aureus* is the most common etiologic agent, and it has a relatively good prognosis. Currently, between 40% and 90% of IVDA with IE are HIV infected. In areas with endemic HCV, HCV infection is presented in almost all of patients. [6]

Diagnosis

The diagnosis of IE is made using a combination of clinical and laboratory findings and is confirmed by transesophageal echocardiography in all patients according to the modified Duke criteria. Preoperative studies including abdominal ultrasound or computer assisted tomography to rule out septic foci are mandatory. [7]

Indications for surgical treatment

Absolute indications for surgical treatment during the active phase of IE include the following: progressive cardiac failure, persistent infection despite antibiotic therapy, embolic events, acute renal failure and prosthetic valve endocarditis. [8]

Surgical technique

The management of IE in active IVDUs remains challenging and has a high operative mortality. Often the surgeon faces a very sick patient with septic complications, which need to be treated surgically as soon as possible after failed antibiotic therapy. Despite progress in antibiotic therapy and cardiac surgical management, surgery of IE in active IVDAs remains demanded, because it entails high-risk surgical treatment and targeted postoperative intensive

care. An early diagnosis is a critical determinant of final outcome. The key to long-term success in IE is early and radical surgical debridement of the infected tissue followed by an aggressive postoperative antibiotic therapy. [9]



Aim of the Work

