

Infective Endocarditis: when to operate?

Dr. Said Abdelaziz MD

Professor of cardiothoracic surgery

Cairo University



Infective endocarditis (IE) remains a life-threatening condition with high incidence of mortality.

Surgical treatment of infective endocarditis remains a serious condition that carries a considerable risk of death and morbidity

Operative procedures are often technically challenging

ORIGINAL RESEARCH

Validated Risk Score for Predicting 6-Month Mortality in Infective Endocarditis

OPEN ACCESS Freely available online

PLOS ONE

A Nationwide Cohort Study of Mortality Risk and Long-Term Prognosis in Infective Endocarditis in Sweden

Anders Ternhag^{1*}, Agneta Cederström¹, Anna Törner², Katarina Westling³

1 Department of Medicine, Södra, Division of Infectious Diseases, Karolinska Institutet, Stockholm, Sweden, 2 Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden

30 day mortality is 10%
6 month mortality is 25%

Conclusions—Six-month mortality after IE is ≈25% and is predicted by host factors, IE characteristics, and IE complications. Surgery during the index hospitalization is associated with lower mortality but is performed less frequently in the highest risk patients. A simplified risk model may be used to identify specific risk subgroups in IE. (*J Am Heart Assoc.* 2016;5:e003016 doi: 10.1161/JAHA.115.003016)

Key Words: infection • mortality • prognosis • surgery • valves

complications

Congestive heart failure

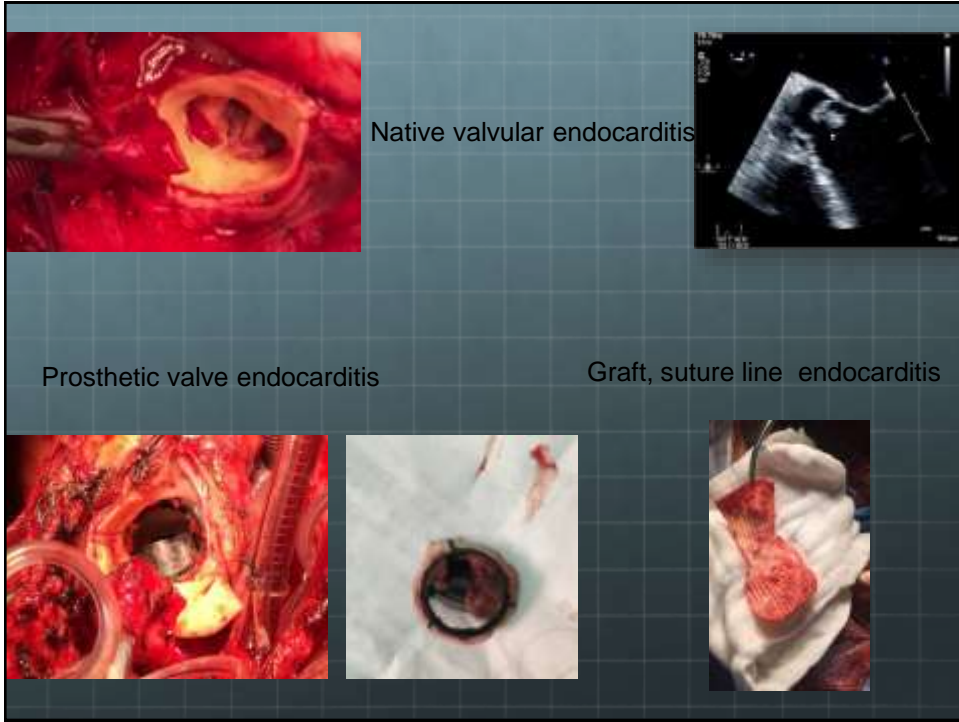
Myocardial abscess

Pseudoaneurysm

Extracardiac mycotic aneurysms

Cerebrovascular accident and peripheral embolization

renal complication



Treatment dilemma!!

When to operate?

What to do ! Repair or replacement



What valve substitute !




CARDIOVASCULAR INFECTIONS (B-HOEN, SECTION EDITOR)
Table 1 Indications of surgery in left-sided infective endocarditis

Number	Indications of surgery	Class of recommendation and level of evidence from AHA Guidelines [1]	Class of recommendation and level of evidence from ESC Guidelines [2]	RVE	PVE	Time of surgery
1	Heart failure	I (B)	I (B)	+	+	Early (AHA), Urgent (ESC)
2	Cardiogenic shock	IIA	II	+	+	Emergency (ESC)
3	Refractory pulmonary edema	IIA	II	+	+	Urgent (ESC)
4	Fungus Infection associated by persistent bacteremia or fever lasting >7 days and provided that either sites of infection and fever have been excluded after the start of appropriate antimicrobial therapy	I (B)	IIa (B)	+	+	Early (AHA), Urgent (ESC)
5	IE caused by fungi or highly resistant organisms	I (B)	IIc	+	+	Early (Urgent/ESC)
6	Heart block, aneurysm or aortic root abscess	I (B)	NA	+	+	Early (AHA), Urgent (ESC)
7	Prosthetic and large (≥10 mm) left-sided vegetation after one or more cycles of optimized empiric empirical medical therapy	IIa (B)	I (B)	+	+	Early (AHA), Urgent (ESC)
8	Severe aortic regurgitation or aortic and mitral vegetations >10 mm	IIa (B)	IIa (B)	+	+	Early (AHA), Urgent (ESC)
9	Mobile and large vegetations ≥10 mm, especially when involving aortic aortic valve leaflet	IIc (C)	NA	+	+	Early (AHA)
10	Very large vegetation ≥10 mm	IIA	IIa (B)	+	+	Urgent (ESC)
11	Large vegetation ≥15 mm	IIA	IIa (B)	+	+	Urgent (ESC)
12	PVE caused by staphylococci or non-ITACEE gram-negative bacteria	IIA	IIc (C)	+	+	Urgent/ESC (ESC)
13	Relapsing PVE	IIc (C)	NA	+	+	Early (AHA)

Class of recommendation: I evidence that the treatment or procedure is beneficial and should be administered or performed. If conflicting evidence about usefulness/efficacy of a treatment or procedure but the weight of evidence is in favor of the treatment or procedure, and it is reasonable to be performed or administered. II conflicting evidence about usefulness/efficacy of a treatment or procedure, benefit is less well established, and the treatment or procedure may be considered.

AHA, American Heart Association; B single randomized trial or nonrandomized studies; C consensus of opinion of the experts and/or small studies, retrospective studies, registries; Early during hospitalization and before completion of antibiotic therapy; Urgent surgery after at least 1–2 weeks of antibiotic therapy; ESC European Society of Cardiology; RVE native valve endocarditis; PVE prosthetic valve endocarditis; Urgent within a few days; NA not addressed by the committee.

General indications

- Heart failure
- Un controlled infection
- Large vegetations
- Annular or periannular abscess
- Prosthetic valve endocarditis
- Prosthetic graft and suture line infection
- Rocking unstable prosthetic valves
- Distal Embolization

Compared with conventional treatment, early surgery significantly reduced the risk of morbidity and mortality.

- ❖ **However**, There is no consensus as to the optimal timing of early surgery
- ❖ The ESC guideline classifies surgical indications in IE as emergent (within 24 hours), urgent (within a few days), and
- ❖ elective (after 1-2 weeks of antibiotic therapy).
- ❖ The AHA/ACC guideline defines early surgery as occurring during the initial hospitalization and before completion of a full therapeutic course of antibiotics.



Emergency surgery

Development haemodynamic instability

Acute valvular
dysfunction
N or P

Acute pulmonary oedema

Rupture of
pseudoaneurysm or
sinus of
Valsalva

Acute Rt. Side HF
Or cardiac tamponade

Urgent surgery within dayes

- ✧ Valvular endocarditis with rather stable haemodynamics
- ✧ Prosthetic valve obstruction due to vegetation (no rocking)
- ✧ Uncontrolled infection after 2 weeks of proper antibiotics
- ✧ Increase in vegetation size
- ✧ Distal embolization (limb – lung – GIT organs)

Early elective surgery (during the hospital stay)

- ✧ Severe aortic or mitral regurgitation with congestive heart failure and good response to medical therapy
- ✧ Prosthetic valve endocarditis with valvular dehiscence or congestive heart failure and good response to medical therapy
- ✧ Presence of abscess or periannular extension
- ✧ Persisting infection when extracardiac focus has been excluded
- ✧ Fungal or other infections resistant to medical cure

Rt. Side IE

- ❑ Challenging, Frequently among IV drug addicts
- ❑ The 2015 American Heart Association guidelines recommended to avoid surgery, if possible, in IE patients who are intravenous drug users due to the concern of infecting the new prosthetic valve.

However!!

- ✓ There are several class II indications for surgery in right-sided IE.
- ✓ Refractory right-sided heart failure due to tricuspid regurgitation
- ✓ Uncontrolled infection caused by fungi or multidrug-resistant organisms
- ✓ Large tricuspid valve vegetations ≥ 20 mm in the presence of recurrent pulmonary emboli

Urgent pt. → Emergency pt.

IF!

- Progressive increase in valvular incompetence
- Increase in size of paravalvular leak
- Increase in the degree of prosthetic valve dysfunction
- Second distal embolization episode

Question?

Patients with infective endocarditis (IE) and cerebrovascular complications (CVCs)

↓

what is the Optimal timing ?

↓

to optimize mortality and recovery

Best evidence

- ◆ After a TIA or a silent cerebral embolism, surgery is recommended without delay (class 1 level B)
- ◆ Intracranial H, surgery must be postponed for at least 1 month (class 1 level C).
- ◆ Every patient should have a repeated head CT scan immediately before the operation.

Conclusion:

- Early surgery, as compared with conventional treatment, significantly reduced the end point of mortality and morbidity
- Surgery for prosthetic valve endocarditis (PVE) follows the general principles outlined for native valve IE.
- IE complicated by CVS (no coma, no ICH) should not be delayed
- Intracranial H, surgery must be postponed for at least 4 weeks

Conclusion:

- Decision-making in individual patients will remain challenging .
- multidisciplinary collaboration between cardiology, microbiology and cardiac surgery teams is required to achieve the best outcome.

THANK YOU



45TH Annual International Congress of the
EGYPTIAN SOCIETY OF CARDIOLOGY
CardioEgypt 2018

