Infective Endocarditis: when to operate?

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

complications

Congestive heart failure
Myocardial abscess
Pseudoaneurysm
Extracardiac mycotic aneurysms
Cerebrovascular accident and peripheral embolization
renal complication
Native valvular endocarditis

Prosthetic valve endocarditis

Graft, suture line endocarditis

Treatment dilemma!!

When to operate? What to do! Repair or replacement

What valve substitute!
General indications

- Heart failure
- Uncontrolled infection
- Large vegetations
- Annular or periannular abscess
- Prosthetic valve endocarditis
- Prosthetic graft and suture line infection
- Rocking unstable prostatic 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.

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**Emergency surgery**

**Development haemodynamic instability**

- Acute valvular dysfunction N or P
- Acute pulmonary oedema
- Rupture of pseudoaneurysm or sinus of Valsalva
- Acute Rt. Side H F
- Or cardiac tamponad
Urgent surgery within days:

- Valvular endocarditis with rather stable haemodynamics
- Prothestic 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
- Prothestic 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
Question?

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

what is the Optimal timing?

to optimize mortality and recovery
The optimal timing of surgery in patients with IE and stroke is a debatable topic. From hundreds of papers, 20 papers were identified, which provide the best evidence to answer the question, What is the optimal timing for surgery in pts. with IE and stroke?

**Best evidence**

- The optimal timing for the operation depends on the type of neurological complication and the urgency of the valve replacement.
- A multidisciplinary approach and to wait for 1–2 weeks of antibiotics treatment before performing cardiac surgery, unless there is emergency indication.
- After a stroke, surgery should not be delayed as long as there is no coma nor cerebral haemorrhage (class IIa level B).
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.