

Indikace k chirurgickému řešení IE v případě neurolog. deficitu následkem embolizace a úloha Heart Teamu



Aleš Mokráček

Nemocnice České Budějovice, a.s.

JČÚ ZSF České Budějovice



ESC/ČKS/ČSKVCH guidelines IE 2023 - incidence a riziko

Vyšší riziko systémová embolizace u valvární IE:

- 1.20 - 50% nemocných s IE
2. Obvykle slezina a CNS
3. > 50% je „asymptomatických“
4. max riziko – den po nasazení ATB
5. Největším rizikem je velikost (> 3cm) a mobilita vegetace



ESC/ČKS/ČSKVCH guidelines IE 2023 – predikce rizika

Klíčová je role TTE/TEE a to zejména v čase

- velikost nad 3cm samostatně a nebo menší v koincidenci s dalším RF – nekontrolovaná infekce....
- změna velikosti po nasazení ATB
- mitrální nebo vícechlopňové postižení
- předchozí embolizace
- SA nebo candida spp.



ESC/ČKS/ČSKVCH guidelines IE 2023 - indikace a načasování operace v kontextu prevence embolizace

Principiálně jde o odstranění veškerého infikovaného materiálu

- urgentně u nemocných s **vegetací** nad 1 cm a předchozí **embolizaci** a to navzdory ATB terapii
- urgentně u nemocných s **vegetací** nad 1 cm a **jinou současnou indikací** k operaci (masivní vada s HF, nekontrolovaná infekce – lokálně nebo systémově)
- zvážit operaci (časně) u vegetace nad 1 cm bez jiných indikujících okolností



Časování operace (ve vztahu k IE)

- ▶ Emergentní/urgentní – bezodkladná - do 24 hod
- ▶ Akutní - cca 2-3 dny
- ▶ Časná - cca 14 dní
- ▶ Elektivní - 6 týdnů

ESC/ČKS/ČSKVCH guidelines IE 2023 - předoperační CMP

Symptomatická TIA/CMP – 35%, asympt. 80% ?

- ▶ Ischemická
- ▶ Hemoragická - výduť, komplikace antikoagulace, krvácení do ischemie....
 - nemáme validní data jak velkým rizikem je
 - **musí/měla by být vyloučena**
 - sekundární krvácení do ischem. ložiska je zde málo rizikové

K dif Dg dojde pravděpodobně v prvních desítkách minut v rámci „iktového protokolu“, pakliže ne, je potřeba vyloučit před dalším postupem. Indikace radiointervence s velkou opatrností – „endokarditický team“



Heart (endocarditis) team

- kardiolog, kardiochirurg, infektolog a mikrobiolog
- neurolog, nefrolog, intenzivista, anesteziolog...

Heart valve centre vs. spádové zařízení

- ne každá endokarditida má být léčena v centru
- ale každá by měla být od začátku komunikována
- každá komplikovaná IE by měla být ale v centru hospitalizována a vyšetřena (vada, velká vegetace, non ATB responder, rizikové agnes

Neurological Outcome of Septic Cardioembolic Stroke After Infective Endocarditis

Elfriede Ruttmann, MD; Johann Willeit, MD; Hanno Ulmer, PhD; Orest Chevtchik, MD;
Daniel Höfer, MD; Werner Poewe, MD; Günther Laufer, MD; Ludwig C. Müller, MD

Background and Purpose—The aim of this study was to evaluate mortality and neurological outcomes of cardioembolic cerebral stroke in infective endocarditis (IE) patients requiring cardiac surgery.

Methods—A consecutive series of 214 patients undergoing cardiac surgery for IE was followed up for 20 years. In 65 patients (mean age, 52 years), IE was complicated by computed tomography- or magnetic resonance imaging-verified stroke (n=61) or transient ischemic attack (n=4). Perioperative (30-day) and long-term mortality was assessed with regression models adjusting for age. Complete neurological recovery of IE survivors was defined by a modified Rankin score of <1 and a Barthel index of 20 points.

Results—Fifty of 61 stroke patients (81.9%) survived surgery. In comparison with nonstroke patients, the age-adjusted perioperative mortality risk was 1.70-fold (95% CI, 0.73 to 3.96, $P=0.22$) higher and long-term mortality risk was 1.23-fold (95% CI, 0.72 to 2.11, $P=0.45$) higher in stroke patients. Patients with complicated stroke (meningitis, hemorrhage, or brain abscess) showed a higher perioperative mortality rate (38.9% vs 8.5%, $P=0.007$) but no higher neurological complication rate than patients with uncomplicated ischemic stroke. Complete neurological recovery was achieved in 35 IE survivors (70%, 95% CI, 55% to 82%). However, in the case of middle cerebral artery stroke, recovery was only 50% and was significantly lower compared with non—middle cerebral artery stroke ($P=0.012$).

Conclusion—Uncomplicated IE-related stroke showed a favorable prognosis with regard to both long-term survival and neurological recovery. The formidable risk of secondary cerebral hemorrhage due to cardiac surgery seems to be much lower than previously thought. (*Stroke*. 2006;37:2094-2099.)

Key Word: infective endocarditis ■ neurologic rehabilitation ■ septic embolism ■ stroke



Is preoperative intracranial hemorrhage a surgical contraindication in infective endocarditis with stroke?

June Lee[^], Hyun Ah Lim[^], Seok Beom Hong, Yong Han Kim[^], Hwan Wook Kim, Do Yeon Kim[^]

Department of Thoracic and Cardiovascular Surgery, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

Contributions: (I) Conception and design: DY Kim, J Lee; (II) Administrative support: YH Kim; (III) Provision of study materials or patients: HA Lim, SB Hong, HW Kim; (IV) Collection and assembly of data: HA Lim, SB Hong; (V) Data analysis and interpretation: DY Kim, J Lee; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Do Yeon Kim, MD, PhD, Department of Thoracic and Cardiovascular Surgery, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, 222 Banpo-daero, Seocho-gu, Seoul 06591, Republic of Korea. Email: goxmd77@catholic.ac.kr.

Background: The optimal timing for surgery in infective endocarditis (IE) with hemorrhagic stroke and neurologic deficits is difficult to decide because of the risk of exacerbating the stroke and provoking intracranial hemorrhagic conversion after surgery using cardiopulmonary bypass (CPB). This retrospective study aimed to investigate the impact of the presence or absence of preoperative intracranial hemorrhage (ICH) on surgical outcomes in IE with recent stroke.

Methods: The medical records of all patients who underwent open heart surgery for active IE from February 2009 to December 2020 were retrospectively reviewed. Among 164 patients who had surgery for left-sided IE, 71 cases in which the period from stroke onset to surgery was <4 weeks were divided into two groups for analysis.

Results: Group A consisted of 49 patients without preoperative ICH and group B consisted of 22 patients with preoperative ICH. There was no significant difference in underlying conditions between the two groups. The two groups had similar rates of postoperative ICH (10.2%, group A vs. 13.6%, group B, $P=0.696$). The 30-day mortality rate was 8.2% in group A and 4.5% in group B ($P=1.000$), and the one-year survival was 86.8% in group A and 95.5% in group B ($P=0.320$). Univariate analysis was performed to identify risk factors for exacerbation of postoperative ICH in the 71 patients, but none of the factors tested showed statistically significant association with the exacerbation of ICH.

Conclusions: Preoperative ICH did not appear to increase the risk of exacerbation of postoperative ICH or the early mortality rate after open heart surgery in patients with infectious endocarditis accompanied by recent septic cerebral embolism.

Keywords: Infective endocarditis (IE); stroke; intracranial hemorrhage (ICH)

Submitted Apr 26, 2023. Accepted for publication Aug 04, 2023. Published online Aug 30, 2023.

doi: [10.21037/jtd-23-695](https://doi.org/10.21037/jtd-23-695)

View this article at: <https://dx.doi.org/10.21037/jtd-23-695>

[^] ORCID: June Lee, 0000-0002-3889-069X; Hyun Ah Lim, 0000-0003-4404-3793; Yong Han Kim, 0000-0002-9669-2763; Do Yeon Kim, 0000-0001-5179-7257.

Article

Early versus Delayed Surgery in Patients with Left-Sided Infective Endocarditis and Stroke

Jamila Kremer^{1†}, Joshua Jahn^{1,*†}, Sabrina Klein², Mina Farag¹, Tobias Borst³ and Matthias Karck¹

Department of Cardiac Surgery, Heidelberg University Hospital, Im Neuenheimer Feld 420, 69120 Heidelberg, Germany
Department of Infectious Diseases, Medical Microbiology and Hygiene, Heidelberg University Hospital, Im Neuenheimer Feld 324, 69120 Heidelberg, Germany

Pharmacy Department, Erlangen University Hospital, Palmsanlage 3, 91054 Erlangen, Germany

* Correspondence: joshua.jahn@med.uni-heidelberg.de; Tel.: +49-6221-56-310089 These authors contributed equally to this work.

Abstract: Background: Timing of surgery remains controversial in patients with infective endocarditis and stroke. Guidelines on infective endocarditis suggest delaying surgery for up to 4 weeks. However, with early heart failure due to progression of the infection or recurrent septic embolism, urgent surgery becomes imperative. Methods: Out of 688 patients who were surgically treated for left-sided infective endocarditis, 187 presented with preoperative neurological events. The date of cerebral stroke onset was documented in 147 patients. The patients were stratified according to timing of surgery: 61 in the early group (0–7 days) vs. 86 in the delayed group (>7 days). Postoperative neurological outcome was assessed by the modified Rankin Scale. Results: Preoperative sepsis was more prevalent in patients with preoperative neurological complications (46.0% vs. 29.5%, $p < 0.001$). Patients with haemorrhagic stroke were operated on later (19.8% vs. 3.3%, $p = 0.003$). Postoperative cerebrovascular accidents were comparable between both groups ($p = 0.13$). Overall, we observed good neurological outcomes ($p = 0.80$) and a high recovery rate, with only 5% of cases showing neurological deterioration after surgery ($p = 0.29$). In-hospital mortality and long-term survival were not significantly different in the early and delayed surgery groups (log-rank, $p = 0.22$). Conclusions: Early valve surgery in high-risk patients with infective endocarditis and stroke can be performed safely and is not associated with worse outcomes.

CB

- 2017-2023 – 14 operací pro IE s předoperační iCMP (10-20%)

Izolovaná Ao nebo Mi	Kombinovaná (vícečetná)	REDO	REDO II a více	
3+1	10	4	4	Alograft root 3x
				Perceval 2x
				Rekonstrukce, bio 9x

Case report – stp.CMP s reziduem

- ▶ Muž, nar 1973
- ▶ St.p.plastice koarktace aorty v dětství. AVR mech protézou 2002, bikuspid,
- ▶ 2/2007 hemianopsie a 10/2007 GM epi jako důsledek TIA
- ▶ 10/2020 autonehoda s tržnou infikovanou ranou na koleni, následně sepse, následně ATB a trvalé subfebrilie, 2/2021 potvrzena valvární IE s abscesem
- ▶ REDO – alograft root – beze změny neurolog.stavu

Závěr:

St p opak CMP s reziduálním nálezem není důvodem pro změnu postupu

Case report

- ▶ Muž 77 let
- ▶ St.p. CABG (2008),
- ▶ 5/2016 – TA TAVI Sapien XT 26, BiVICD (10/2016), RF ablace (12/2016)
- ▶ 12/2023 – iCMP – paréza PHK, expresivní afazie, infekce stimulačního systému, spondylodiscitida, para II-III/IV, renální insuf....nesoběstačnost, minimální mobilita. Trvale febrilní, nekontrolovaná infekce.
- ▶ 12/23 – AVR – bez progresu neurolog deficitu (nicméně 6. den zmírá s multiorg. selháním)

závěr:

IE TAVI reálně existuje. Zde nedošlo ke zhoršení neurolog stavu.

Jedna problematika je paravlavální leak (kacifikační skóre...) a následná profylaxe/léčba.

Druhá je pak, že často se jedná o nemocné na a nebo za hranou...pečlivé zhodnocení heart teamem a variantně hospicová léčba?



závěr

- ▶ Ischemický neurologické deficit – časný nebo chronický – není zásadně zvyšující rizikový faktor s ohledem na časný výsledek operace
- ▶ Nicméně omezená rehabilitace a reziduum zvyšují riziko operace globálně
- ▶ Úloha heart teamu je právě ve zhodnocení všech rizik/přínosů časné nebo elektivní operace