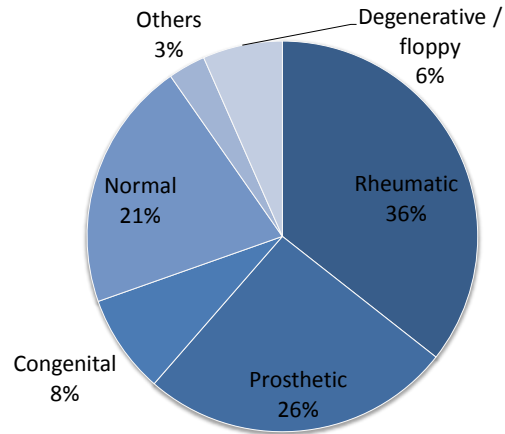


## **Infective Endocarditis Cairo University Hospital Experience**

Dina Osama, MD  
Lecturer Cardiovascular Medicine

- 368 patients between 5/2005 – 11/2016
- Males 57.3%
- **Mean age: 32.4 ( $\pm$ 12.5) years**
- Median duration of symptoms before referral  
28 days (0 – 730)
- **Antibiotic use prior to admission: 75%**

## Underlying Heart Disease



## Risk Factors & Comorbidities

- Hemodialysis 7.1%
- DM 5.9%
- IV drug abuse 10.9%
- Health-care associated IE 17.1%
- Prior IE 3.9%

## Causative Microorganism

Organism	%
Unknown	32.6
Staph	27.5
Strept	10.4
Enterococci	4.6
Fungal	8.1
Coxiella, Brucella, Bartonella	6.2
HACEK	0.8
Non HACEK Gm-ve	7.9
Polymicrobial	1.9

## Microbiologic Diagnosis

- Positive blood culture 54.2%
- Serologic testing: 65.3%
- Positive serologic testing: 17.9%

## Valve Involved

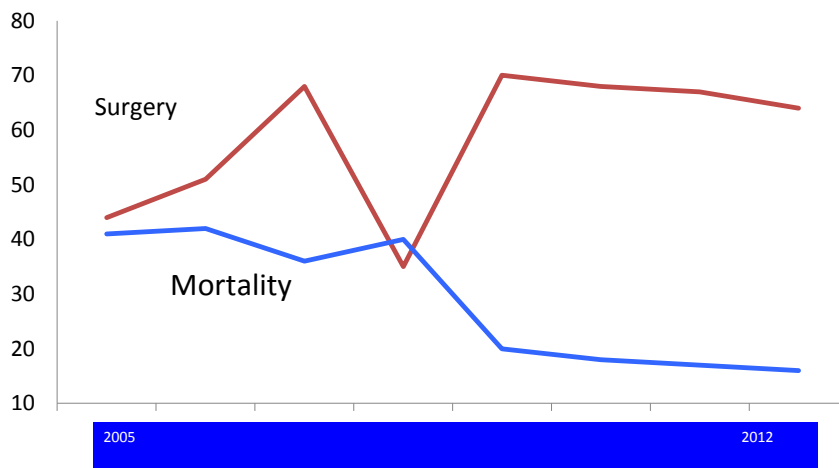
	%
Mitral	52.7
Aortic	35.3
Tricuspid	18.2
Pulmonary	1.4
Non-valvular	4.9
Multivalvular	15.8

- Surgery indicated 79%
- Surgery performed 62% of indicated

## Complications

	%
Heart failure	<b>45.2</b>
Acute renal failure	22.3
Major embolization	35.3
Fulminant sepsis	12.2
Mycotic aneurysm	<b>6.5</b>
Cerebral hge	<b>6.8</b>
Aortic root abscess	8.4
Mortality	<b>28.3</b>

## Surgery & Mortality



Heart

## Early versus late surgical intervention or medical management for infective endocarditis: a systematic review and meta-analysis

Mahesh Anantha Narayanan, Toufik Mahfood Haddad, Andre C Kalil, Arun Kanmanthareddy, Flakesh M Sun, George Mansour, Christopher J Destache, Janani Baskaran, Aryan N Mooss, Tammy Wichman, Lee Morrow and Fienuga Vivekanandan

Heart 2016 102: 950-957 originally published online February 11, 2016  
doi: 10.1136/heartjnl-2015-308589

Updated information and services can be found at:  
<http://heart.bmj.com/content/102/12/950>

Heart

**Methods** PubMed, Cochrane, EMBASE, CINAHL and Google-scholar databases were searched from January 1960 to April 2015. Randomised controlled trials, retrospective cohorts and prospective observational studies comparing outcomes between early surgery at 20 days or less and conservative management for infective endocarditis were analysed.

**Results** A total of 21 studies were included. OR of all-cause mortality for early surgery was 0.61 (95% CI 0.50 to 0.74, p<0.001) in unmatched groups and 0.41 (95% CI 0.31 to 0.54, p<0.001) in the propensity-matched groups (matched for baseline variables). For patients who had surgical intervention at 7 days or less, OR of all-cause mortality was 0.61 (95% CI 0.39 to 0.96, p=0.034) and in those who had surgical intervention within 8–20 days, the OR of mortality was 0.64 (95% CI 0.48 to 0.86, p=0.003) compared with conservative management. In propensity-matched groups, the OR of mortality in patients with surgical intervention at 7 days or less was 0.30 (95% CI 0.16 to 0.54, p<0.001) and in the subgroup of patients who underwent surgery between 8 and 20 days was 0.51 (95% CI 0.35 to 0.72, p<0.001). There was no significant difference in in-hospital mortality, embolisation, heart failure and recurrence of endocarditis between the overall unmatched cohorts.

**Conclusion** The results of our meta-analysis suggest that early surgical intervention is associated with significantly lower risk of mortality in patients with infective endocarditis.

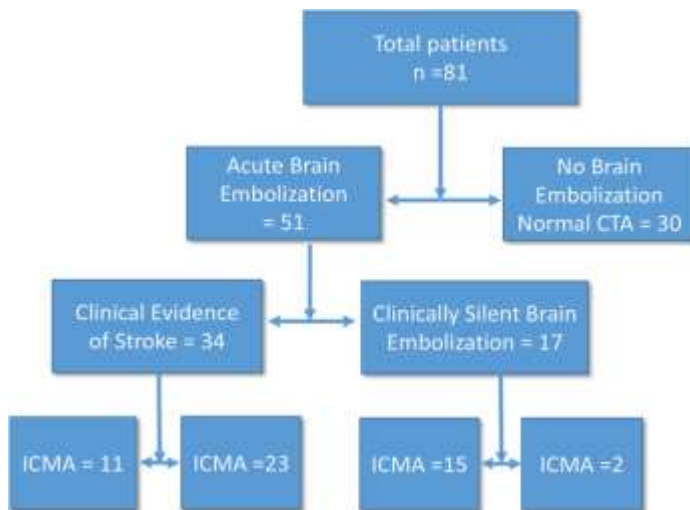
Correspondence

to:

Andre C Kalil,  
Christopher J  
Wichman, Lee

February 11, 2016

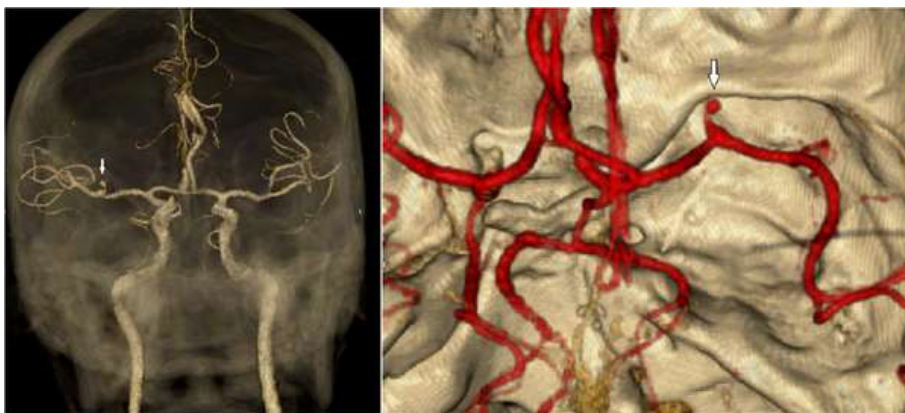
Fig 1. Angiography findings of the studied patients.



Meshaal MS, Kassem HH, Samir A, Zakaria A, Baghdady Y, et al. (2015) Impact of Routine Cerebral CT Angiography on Treatment Decisions in Infective Endocarditis. PLOS ONE 10(3): e0118616. doi:10.1371/journal.pone.0118616  
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0118616>



Fig 2. CTA showing a small 3.5 mm ICMA of the right MCA.



Meshaal MS, Kassem HH, Samir A, Zakaria A, Baghdady Y, et al. (2015) Impact of Routine Cerebral CT Angiography on Treatment Decisions in Infective Endocarditis. PLOS ONE 10(3): e0118616. doi:10.1371/journal.pone.0118616  
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0118616>





**OPEN ACCESS**

Shahar, Michael M, Assouf H, Sarel A, Zilman A, Hagitay Y, et al. (2016) Impact of Routine Cerebral CT Angiography in Treatment Decisions in Infective Endocarditis. *PLoS ONE* 11(3): e0153116. doi:10.1371/journal.pone.0153116

**Accession Number:** eprint handle, University Medical Center (UMC) library, NCT01531163

**Received:** April 15, 2016

**Accepted:** March 11, 2016

**Published:** March 11, 2016

**Copyright:** © 2016 Shahar et al. This is an open access article distributed under the terms of the [Creative Commons Attribution License](http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Funding:** The work was supported by the Dr. Aron School of Medicine. The funder had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

**Competing Interests:** The authors have no competing financial interests exist.

## Abstract

**Background**

Infective endocarditis (IE) is commonly complicated by cerebral embolization and hemorrhage secondary to intracranial mycotic aneurysms (CMAs). These complications are associated with poor outcome and may require diagnostic and therapeutic plans to be modified. However, routine screening by brain CT and CT angiography (CTA) is not standard practice. We aimed to study the impact of routine cerebral CTA on treatment decisions for patients with IE.

**Methods**

From July 2007 to December 2012, we prospectively recruited 61 consecutive patients with definite sub-acute IE according to modified Duke's criteria. All patients had routine brain CTA conducted within one week of admission. All patients with ICMAs underwent trans-catheter conventional angiography. Invasive treatment was performed for ruptured aneurysms, aneurysms >5 mm, and persistent aneurysms despite appropriate therapy. Surgical clipping was performed for leaking aneurysms if not amenable to intervention. Results: The mean age was 50.4±18.0 years and 60.5% were males. Staph aureus was the most common organism (52.3%). Among the patients, 37% had underlying rheumatic heart disease, 20% had prosthetic valves, 25.3% developed IE on top of a structurally normal heart and 8.6% had underlying congenital heart disease. Brain CTA revealed that 61 patients had evidence of cerebral embolization, of them 17 were clinically silent. Twenty-six patients (20% ICMAs), of which 11 were clinically silent. Among the patients with ICMAs, 11 underwent intracranial aneurysmectomy and 2 underwent transcatheter surgery. The brain CTA findings prompted different treatment choices in 21 patients (25.4%). The choices were aneurysm treatment before cardiac surgery rather than of follow up, valve replacement by biological valve instead of mechanical valve, and withholding anticoagulation in patients with prosthetic or valve endocarditis for fear of aneurysm rupture.

---

PLOS ONE | DOI:10.1371/journal.pone.0153116 March 10, 2016 7/10

## CONCLUSIONS

- Importance of spreading national awareness against indiscriminate use of antibiotics, and need for early withdrawal of blood cultures in suspected patients
- Measures to prevent spread of health-care associated and fungal IE
- Early surgery is important to reduce mortality
- Routine cerebral imaging to detect mycotic aneurysms is cost-effective



**THANK YOU**