# Impact of Renal Function on Stroke or Systemic Embolism Following TAVR

Jung-Min Ahn, MD.

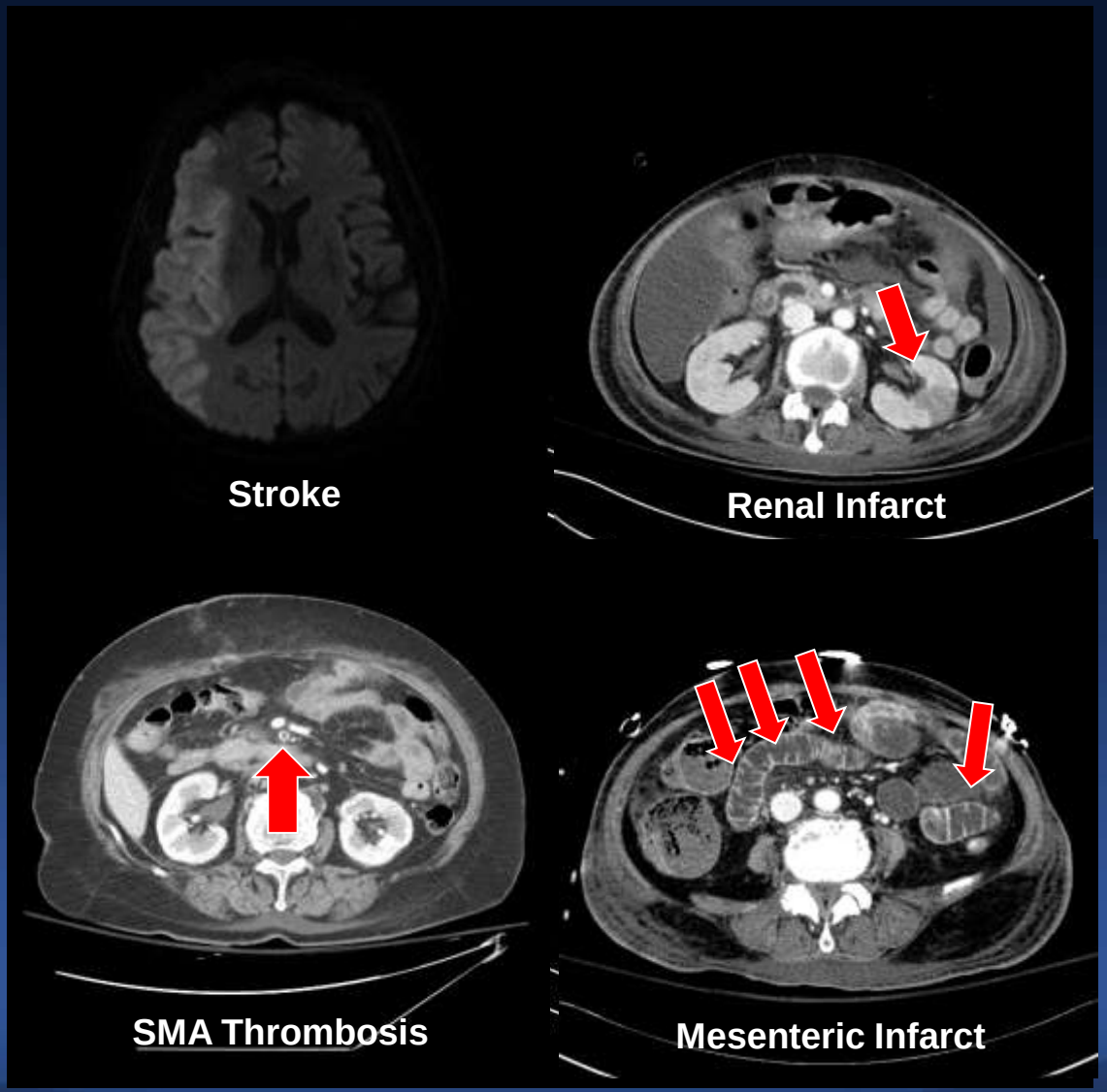
Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea.

# Introduction

- Because most patients undergoing TAVR are very elderly and have a high incidence of cardiovascular risk factors, renal function of those patients is frequently impaired.

- In this study, we studied the association between baseline renal function and the incidence of stroke and extracranial systemic embolism at 30 days after TAVR.

# Stroke and Systemic Embolization



# Methods

- Between March 2010 and February 2017, a total of **300** patients who underwent TAVR for severe aortic stenosis at Asan Medical Center, Seoul, were enrolled in this study
- Estimated glomerular filtration rate was calculated with the abbreviated Modification of Diet in Renal Disease equation

| Preserved Renal Function | Impaired Renal Function |
| --- | --- |
| ≥60 ml/min/1.73m$^2$ | <60 ml/min/1.73m2 |
| **67%** | **33%** |

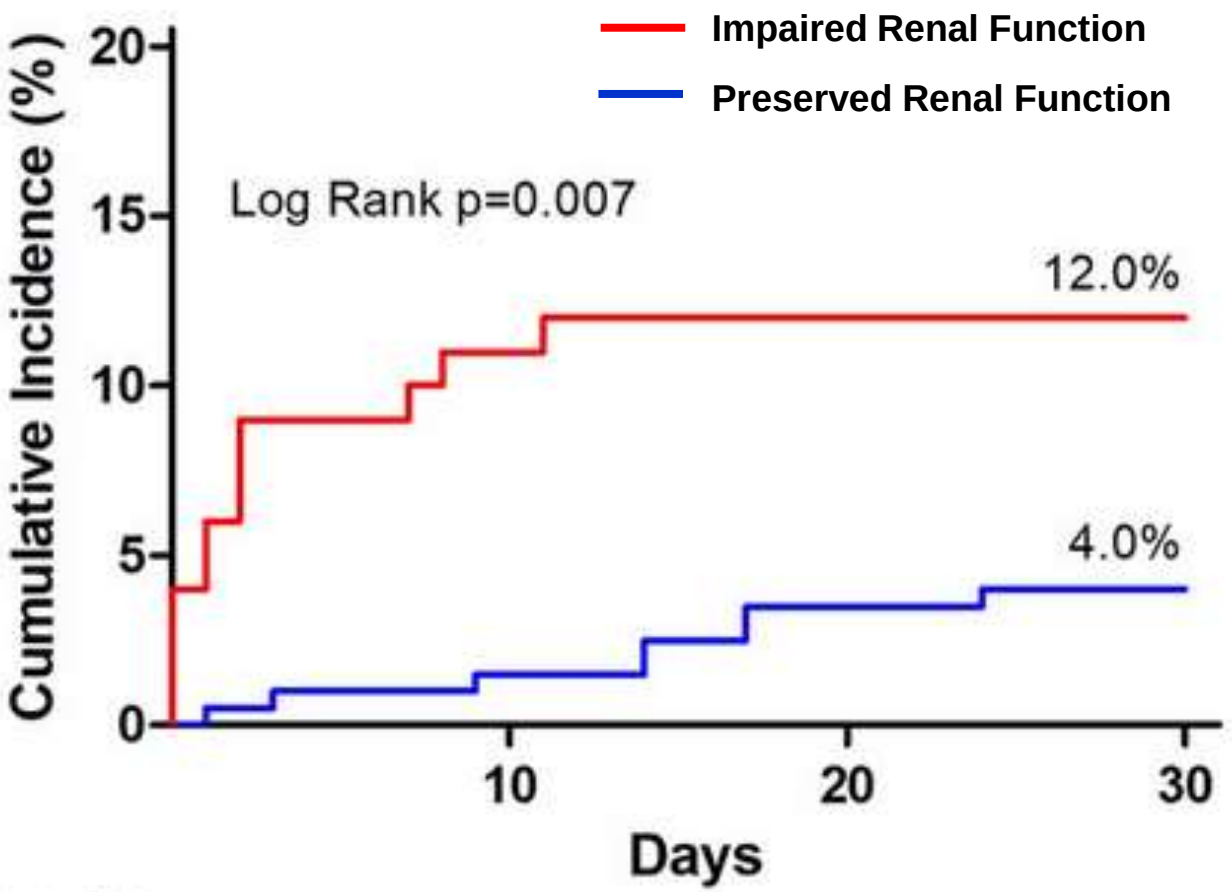
# Baseline Characteristics

| | Preserved Renal Function (N=200) | Impaired Renal Function (N=100) | p value |
|---|---|---|---|
| Age, years | 77.9 ± 4.9 | 79.6 ± 5.2 | 0.008 |
| Male | 94 (47.0) | 53 (53.0) | 0.39 |
| Logistic EuroSCORE, % | 16.0 ± 10.4 | 22.5 ± 15.7 | <0.001 |
| STS score, % | 3.3 ± 1.9 | 7.0 ± 7.6 | <0.001 |
| eGFR (MDRD) | 82.1 ± 16.5 | 40.6 ± 14.9 | <0.001 |
| Atrial fibrillation/flutter | 18 (9.0) | 18 (18.0) | 0.04 |
| Hypertension | 165 (82.5) | 98 (98.0) | <0.001 |
| Diabetes mellitus | 49 (24.5) | 50 (50.0) | <0.001 |
| Coronary artery disease | 72 (36.0) | 51 (51.0) | 0.02 |
| Prior cerebrovascular accident | 17 (8.5) | 12 (12.0) | 0.45 |
| Peripheral vascular disease | 8 (4.0) | 12 (12.0) | 0.02 |
| Chronic lung disease | 40 (20.0) | 13 (13.0) | 0.18 |
| Prior PCI | 48 (24.0) | 39 (39.0) | 0.01 |
| Prior CABG | 7 (3.5) | 13 (13.0) | 0.004 |

# Systemic Embolization at 30 Days

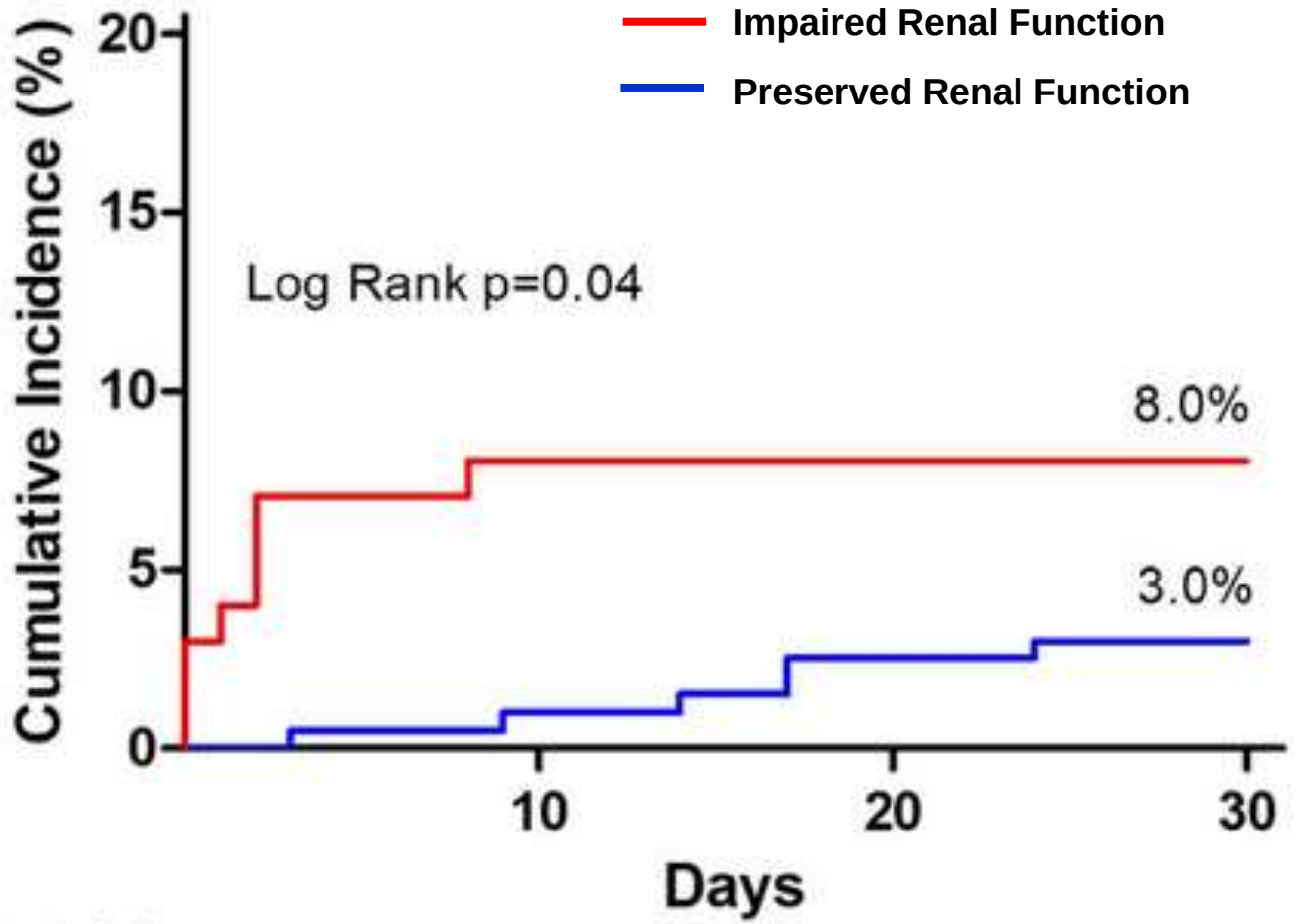
| Events | Total number of patients |
|---|---|
| **Stroke** | 14 |
| Disabling stroke | 6 |
| Non-disabling stroke | 7 |
| Transient ischemic attack | 1 |
| **Extracranial systemic embolism** | 9 |
| Bowel | 4 |
| Kidney | 5 |
| Spleen | 6 |
| Liver | 2 |
| Coronary artery | 1 |

# Stroke and Systemic Embolization




| Patient at risk | | | |
|---|---|---|---|
| Impaired renal function | 90 | 89 | 87 |
| Preserved renal function | 198 | 195 | 191 |

# Stroke

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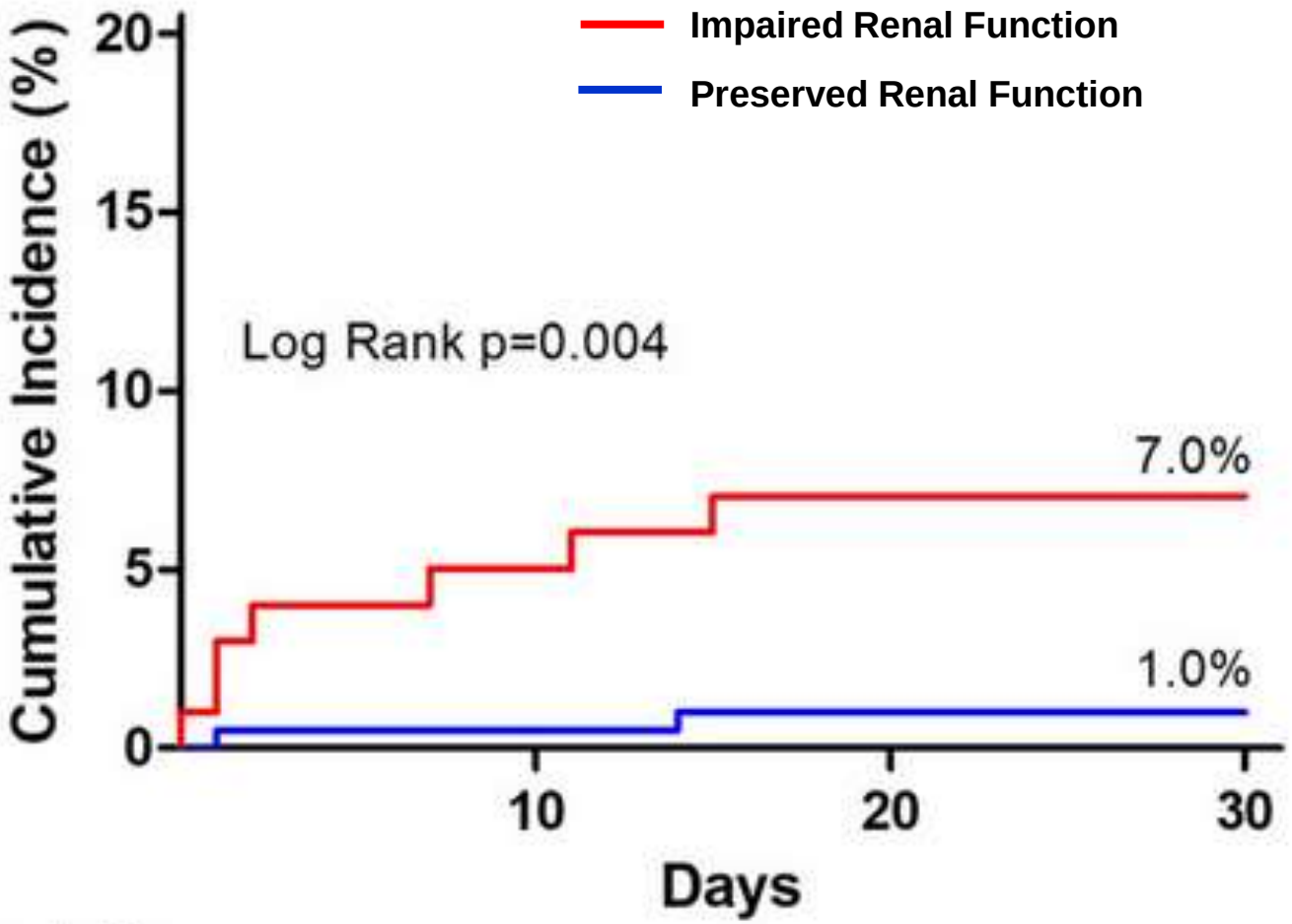
# Systemic Embolization




| Patient at risk | | | |
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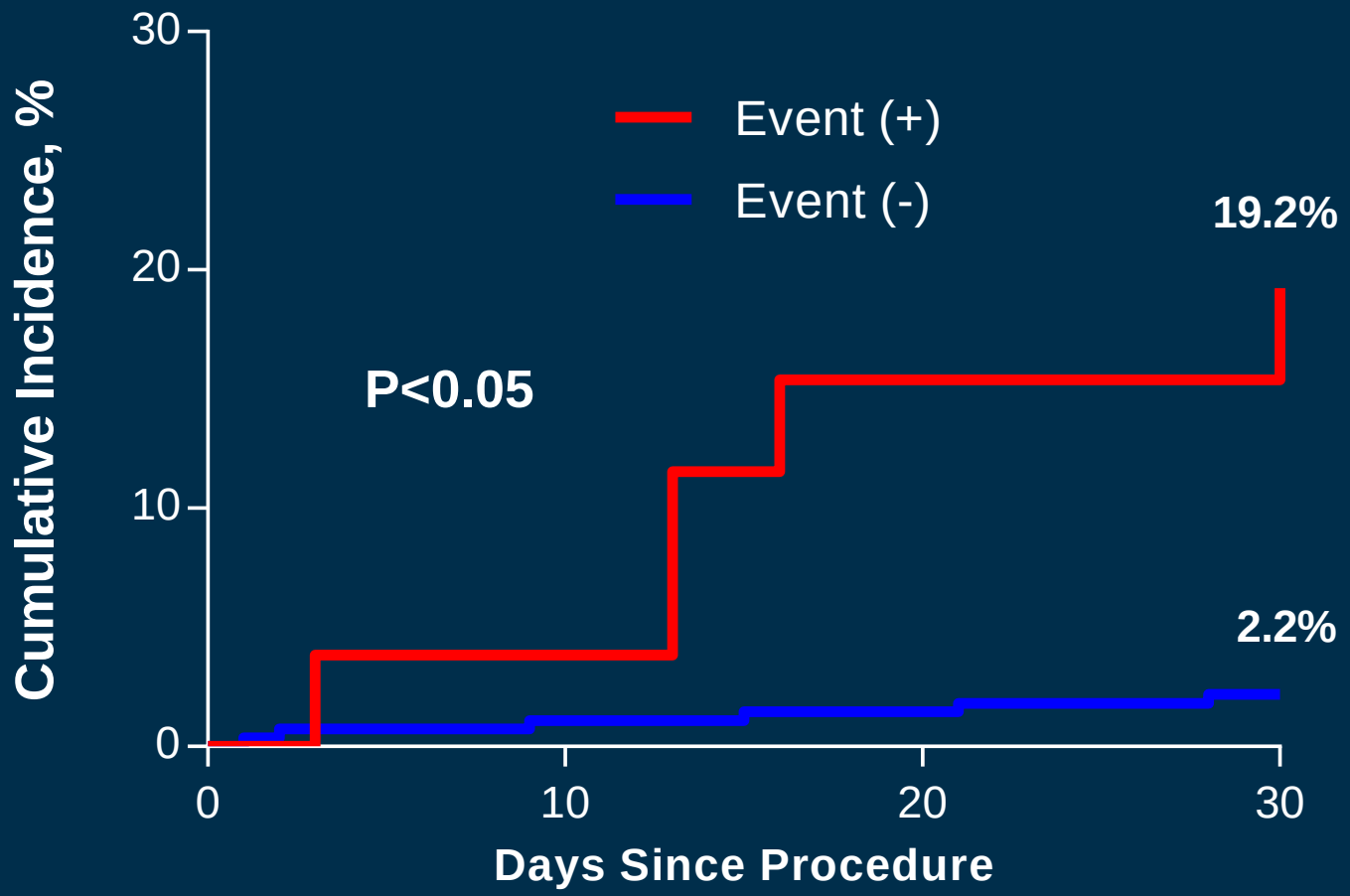
# Adjusted HR of Impaired Renal Function For 30 Day-Outcome

| | Adjusted HR (95% CI) | P Value |
|---|---|---|
| Stroke or Systemic Embolism | 4.11 (1.45-11.6) | 0.008 |
| Stroke | 7.65 (1.94-30.1) | 0.004 |
| Systemic Embolism | 5.87 (0.86-40.2) | 0.07 |
| Death | 4.06 (1.04-15.9) | 0.05 |
| Death or Stroke | 3.08 (1.27-7.4) | 0.01 |
| Death, Stroke or Systemic Embolism | 2.62 (1.16-5.9) | 0.02 |

# Impact on Mortality
# Stroke or Systemic Embolization



# Conclusion

- We found that impaired renal function (estimated glomerular filtration rate <60ml/min/1.73m$^2$) was an independent predictor of the occurrence of stroke and systemic embolism at 30 days after TAVR.
- In addition, patients with impaired renal function had a tendency toward higher mortality.
- Further study is warranted for an appropriate pharmacologic and mechanical antithromboembolic strategy in those patients at risk