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Predictors, Incidence, and Outcomes of Patients Undergoing Transfemoral Transcatheter Aortic Valve Implantation Complicated by Stroke

From the CENTER-Collaboration

Wieneke Vlastra, MD Pilar Jimenez-Quevedo, MD Didier Tchétché, MD Jaya Chandrasekhar, MBBS, MS Fabio S. de Brito Jr, MD, PhD Marco Barbanti, MD Ran Kornowski, MD Azeem Latib, MD Augusto D'Onofrio, MD, PhD Flavio Ribichini, MD, PhD Jan Baan, MD, PhD Jan G.P. Tijssen, PhD Jose M. De la Torre Hernandez, MD, PhD Nicolas Dumonteil, MD Rogério Sarmiento-Leite, MD, PhD Samantha Sartori, PhD S. Rosato, MD, PhD, MD Giuseppe Tarantini, MD, PhD Mattia Lunardi, MD Katia Orvin, MD Matteo Pagnesi, MD Rosana Hernandez-Antolin, MD, PhD Thomas Modine, MD George Dangas, MD, PhD Roxana Mehran, MD Jan J. Piek, MD, PhD Ronak Delewi MD, PhD Heart Center, Amsterdam, the Netherlands (W.V., J.C., J.B., J.G.P.T., J.J.P., R.D.). Department of Clinical and Experimental Cardiology, Amsterdam UMC, University of Amsterdam, Amsterdam Cardiovascular Sciences, the Netherlands (W.V., J.C., J.B., J.G.P.T., J.J.P., R.D.). Cardiovascular Institute, San Carlos University Hospital, Madrid, Spain (P.J.-Q.). Clinique Pasteur, Toulouse, France (D.T., N.D.). The Zena and Michael A. Wiener Cardiovascular Institute, Icahn School of Medicine at Mount Sinai, New York, NY (J.C., S.S., G.D., R.M.). Heart Institute (InCor), University of São Paulo Medical School, Brazil (F.S.d.B.). Division of Cardiology, Policlinico-Vittorio Emanuele Hospital, University of Catania, Italy (M.B.). Cardiology Department, Rabin Medical Center, Petach Tikva, Israel (R.K., K.O.). Interventional Cardiology Unit, San Raffaele Scientific Institute, Milan, Italy (A.L., M.P.). Interventional Cardiology Unit, Department of Cardiac, Thoracic and Vascular Sciences, University of Padova, Italy (A.D., G.T.). Division of Cardiology, Department of Medicine, University of Verona, Italy (F.R., M.L.). Hospital Marqués de Valdecilla, Servicio de Cardiología, Santander, Cantabria, Spain (J.M.D.I.T.H.). Instituto de Cardiología do Rio Grando do Sul, Brazil (R.S.-L.). National Centre for Global Health, Istituto Superiore di Sanità, Rome, Italy (S.R.). Department of Cardiology, University Hospital Ramon y Cajal, Madrid, Spain (R.H.-A.). Centre Hospitalier Universitaire, Lille, France (T.M.).

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Abstract

Background:

Stroke remains one of the most devastating complications of transcatheter aortic valve implantation (TAVI). The aim of this study was to identify the incidence, timing, temporal trends,

and predictors of stroke after TAVI and evaluate the outcomes of patients with stroke.

Methods and Results:

The CENTER-Collaboration is an international collaboration consisting of 3 national registries and 7 local registries or prospective clinical trials, selected through a systematic review. Accordingly, a total of 10 982 patients undergoing transfemoral TAVI between 2007 and 2018 were included in the current patient-level pooled analyses. A total of 261 patients (2.4%) experienced stroke during the first month after TAVI. The median time between TAVI and stroke was 1 day (interquartile range, 0–6 days). The stroke rate was comparable in procedures performed in the early years of TAVI (2007–2012) to those in the more recent years of TAVI (2013–2018; both 2.4%; $P=1.0$). Independent predictors of stroke at 30 days were a history of cerebrovascular events (odds ratio, 2.2; 95% CI, 1.4–3.6; $P=0.0012$) and a glomerular filtration rate of <30 mL/min per 1.73 m² (odds ratio, 1.7; 95% CI, 1.0–2.8; $P=0.05$). Stroke occurring within the first 30 days after TAVI was associated with a 6-fold increase of 30-day mortality (odds ratio, 6.0; 95% CI, 4.4–8.1; $P<0.001$). Moreover, patients with stroke more frequently had documented new-onset atrial fibrillation (16% versus 3%; $P<0.001$) and major or life-threatening bleedings (12% versus 7%; $P=0.002$) at 30-day follow-up.

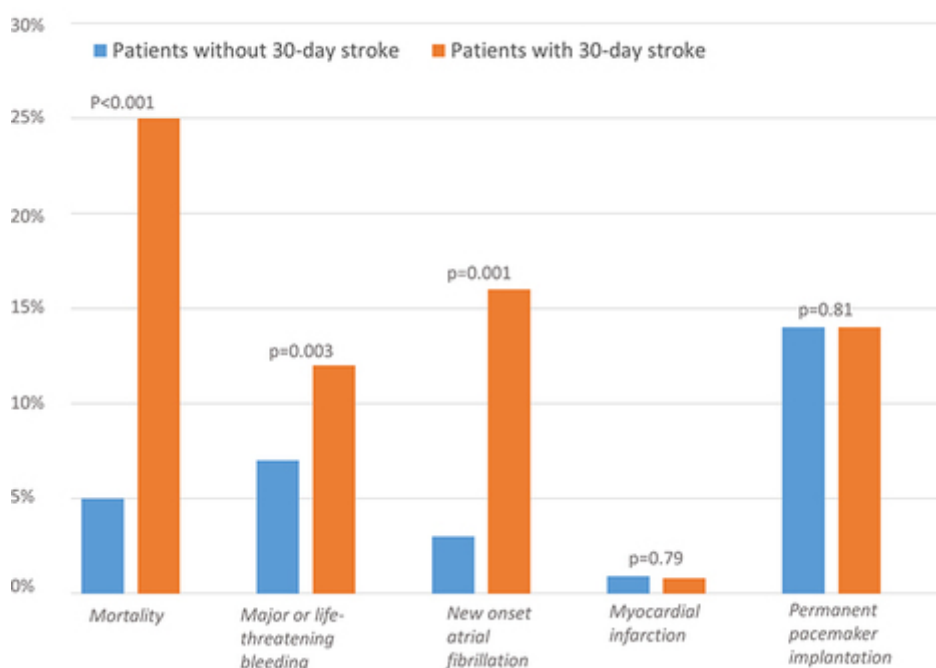
Conclusions:

In this large, global, patient-level analysis, the incidence of stroke after transfemoral TAVI was 2.4%. Prior cerebrovascular events and a low glomerular filtration rate independently predicted the occurrence of stroke after TAVI. The occurrence of stroke after TAVI was associated with a strikingly 6-fold increase of 30-day mortality; additionally, there was a 5-fold higher rate of new-onset atrial fibrillation in patients with stroke.

Clinical Trial Registration:

URL: <https://www.clinicaltrials.gov>. Unique identifier: NCT03588247.

Comparing 30-day outcomes in patients with and without 30-day stroke



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Footnotes

The Data Supplement is available at

<https://www.ahajournals.org/doi/suppl/10.1161/CIRCINTERVENTIONS.118.007546>.

Ronak Delewi, MD, PhD, Department of Cardiology, Academic Medical Center–University of Amsterdam, Meibergdreef 9, 1105AZ Amsterdam, the Netherlands. Email r.delewi@amc.nl

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