Interventional treatment of aortic valve stenosis by transcatheter aortic valve replacement (TAVR) has become routine practice in elderly and high risk patients in recent years. Similar to other vascular interventional or surgical procedures TAVR carries thrombotic risks such as stroke, myocardial infarction or systemic embolism as well as peri-procedural bleeding risks. These risks comprise the access site, the type of prosthesis, and the individual risk profile of the patient. Not only during the peri-procedural period but also during longterm follow-up the current target population for TAVR procedures carries a high risk for thrombotic events in particular if atrial fibrillation is present. On the other hand side the bleeding risk is also increased in these patients. Thus, to provide the optimal strategy of antithrombotic therapy during and after TAVR remains a clinical challenge.

Another important aspect in this context is the fact that about 30% of patients undergoing a TAVR procedure develop new atrial fibrillation and up to 30% of the patients undergoing TAVR already present with chronic atrial fibrillation.

Owing the high risk patient profile of a typical TAVR candidate this high prevalence of atrial fibrillation is also characterised by a high CHA₂DS₂-VASc-score and thus these patients carry a substantial thrombembolic risk (3).

On the other hand the bleeding risk is also increased in these patients. The bleeding risk comprises the access site and the individual risk profile of the patient. Thus, to provide the optimal strategy of antithrombotic therapy during and after TAVR remains a clinical challenge.

One option to address this challenge could be to compare surgical with interventional valves. Similar to surgical biologic aortic valve prostheses TAVR valves carry leaflets made from biologic material such as porcine pericardium. In TAVR valves a metallic frame similar to a vascular
Antithrombotic therapy in TAVI

The main structural difference between surgical and interventional valves is the stent that exposes metal surface to the blood stream and thus may be accompanied by additional prothrombotic risk. Based on early clinical experience in TAVR and also newer valve designs which reduce procedural problems such as residual paravalvular insufficiency e.g. by the presence of a skirt-like tissue belt and thus additional prothrombotic material may require new evaluation of the optimal antithrombotic therapy.

As mentioned every second patient undergoing TAVR has existing atrial fibrillation or develops new onset atrial fibrillation after valve implantation. In these patients a combination of an anticoagulant with an antiplatelet agent represents the current standard of care. If there is a role for the novel oral anticoagulants (NOACs) which provide a superior risk/benefit profile compared to vitamin K antagonists in atrial fibrillation patients without valvular disease and without valve prosthesis is yet to be established.

Conclusion

Dual antiplatelet therapy represents the current standard of care in patients undergoing transcatheter aortic valve replacement.

Conflict of interest

The author declares that he has received speakers honoraria from Astra Zeneca, Bayer, Boehringer Ingelheim, Bristol Myers Squibb, Daiichi Sankyo, Glaxo Smith Kline, Lilly, Pfizer, Sanofi, The Medicines Company,

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