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Predictors of increased d-dimer level at follow-up period after transcatheter aortic valve implantation. Is oral anticoagulation therapy better?

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Topic(s):
Valvular Heart Disease: Intervention

Citation:

Background:

Recently, there are some reports that hypo-attenuated leaflet thickening (HALT) following transcatheter aortic valve implantation (TAVI) is incidentally detected by multi-slice computed tomography. It is believed that valve thrombosis causes HALT, because oral anticoagulation therapy (OAC) is effective for HALT regression. Furthermore, it is reported that d-dimer level increases in patients with HALT, and might be a key biomarker to detect HALT.

Purpose:

We sought to investigate the predictors related to increased d-dimer level at 6 months after follow-up TAVI.

Methods:

We enrolled 124 consecutive patients who underwent successful TAVI between 2016 and 2018. Study patients were classified into two groups according to antithrombotic therapy resume (OAC therapy or anti-platelet therapy). We set the primary endpoint as the d-dimer levels at 6 months after TAVI. To evaluate the risks of the primary endpoint, we employed a multivariable linear regression model, setting the primary endpoint as an objective variable and patient and clinical backgrounds as explanatory variables. Furthermore, we set the secondary endpoint as one-year bleeding event.

Results:

The median age of patients was 83 years old (quartile 80-87). Patients who had taken OAC at 6 months follow-up after TAVI were 29.8%. The median d-dimer level at 6 months after TAVI was 1.3 (1.0-2.2) µg/ml, and OAC group had statistically lower d-dimer level at 6 months follow-up than those in non-OAC group (p=0.020). Uni-variable linear regression model demonstrated that increased d-dimer level at follow-up had significant relationship with large effective orifice area (EOA) (p=0.002) and low left ventricular ejection fraction (LVEF) (p=0.048) after TAVI. Furthermore, large EOA (p=0.003) and OAC therapy (p=0.027) were independently associated with increased d-dimer level in multivariate analysis. Kaplan-Meier estimates revealed that there were no significant difference regarding one-year bleeding event between OAC group and non-OAC group (log-rank p=0.167).

Conclusions:

This study suggests that large EOA after TAVI is associated with increased d-dimer levels at 6 months after TAVI, and OAC therapy might have a potential to decrease d-dimer level after TAVI without increase of
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Results: The median age of patients was 83 years old (quartile 80-87). Patients who had taken OAC at 6 months follow-up after TAVI were 29.8%. The median d-dimer level at 6 months after TAVI was 1.3 (1.0-2.2) µg/ml, and OAC group had statistically lower d-dimer level at 6 months follow-up than those in non-OAC group (p=0.020). Uni-variable linear regression model demonstrated that increased d-dimer level at follow-up had significant relationship with large effective orifice area (EOA) (p=0.002) and low left ventricular ejection fraction (LVEF) (p=0.048) after TAVI. Furthermore, large EOA (p=0.003) and OAC therapy (p=0.027) were independently associated with increased d-dimer level in multivariate analysis. Kaplan-Meier estimates revealed that there were no significant difference regarding one-year bleeding event between OAC group and non-OAC group (log-rank p=0.167).

Conclusions: This study suggests that large EOA after TAVI is associated with increased d-dimer levels at 6 months after TAVI, and OAC therapy might have a potential to decrease d-dimer level after TAVI without increase of bleeding events.