Patients who increase troponin levels after transcatheter aortic valve implantation manifest distinct electrocardiographic findings

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Background

Troponin elevation has been observed in patients after Transcatheter Aortic Valve Implantation (TAVI). The reason of myocardial injury in most patients after TAVI is probably multifactorial. Whether this elevation can be associated with new ECG findings after TAVI has not been studied. Therefore, we determined the incidence and the characteristics of ECG changes in patients with Troponin elevation after TAVI.

Methods

• From June 2008 to July 2011 we enrolled 95 consecutive patients (pts) with severe aortic stenosis, without significant coronary artery disease, who underwent uncomplicated TAVI. We performed electrocardiograms before and for 5 days after the procedure (Figure 1, Figure 2). Troponin I levels were measured at each point time and elevations > 0.4 ng/ml were recorded. In all patients, baseline and post – procedural troponin levels and ECG recordings were compared.

• Prolonged QTc: Male >450 msec Female >470 msec

Results

Overall thirty three patients (24%) (pts) (17 males, 16 females, mean age 85±6.5 yrs), without significant coronary artery disease, who underwent uncomplicated TAVI, manifested Troponin I elevation (mean troponin I = 0.95±1.61).

BEFORE TAVI
Prolonged QTc (475.9±11.2 msec) was detected before TAVI in 29.2% of the pts (9), while QTc without prolongation was present in 70.8 % of the pts (24) (426.1±14).

AFTER TAVI
• The percentage of pts with prolonged QTc (481.8±20.2 msec) was increased up to 73.3% (before vs after TAVI p=0.001).
• QTc without prolongation was observed in 26.7 % (427.9±12.9).
• In 57% of patients who developed prolongation of QTc, new LBBB was observed in 47% of them
• The ECG characteristics remained unchanged before and after TAVI except for QTc prolongation (kappa=0.198, p=0.0191).

Conclusions

In patients with Troponin I elevation after TAVI, the incidence of prolonged QTc is increased. This may reflect ischemia as a result of microembolization or the mechanical effect of the self expandable bioprosthesis.

Declaration of interest

There are no conflicts of interest to disclose.