**Abstract: P1844**

**Blood erythropoietin independently predicts mid-term survival after post-procedural recovery from transcatheater aortic valve replacement in aortic stenosis: a prospective study**

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**Background**

Erythropoietin (EPO) is an independent predictor for survival in chronic heart failure, myocardial infarction and other cardiac disorders. In a prospective observational study, independent prognostic value of EPO levels in patients with symptomatic aortic stenosis undergoing TAVR was investigated.

**Methods**

All consecutive patients undergoing TAVR in a high-volume centre in a 19-month period were included. A 1-year follow-up was completed. Patients with eGFR <30 mL/min/1.73m\(^2\) were excluded. WHO guidelines were used to define anaemia (Hb <12mg/dl for women, <13mg/dl for men). Chronic kidney disease (CKD) stages were used to classify eGFR: CKD 1 (>90), 2 (60-90), 3a (45-59), 3b (30-44).

Pre-procedural anaemia status, EPO levels and iron deficiency were compared in 1-year survivors vs. non-survivors. Log-EPO levels were used for a univariate Cox regression analysis of 1-year mortality. Baseline variables considered to be clinically relevant or found significant in univariate analysis were included in multivariate analysis. Kaplan-Meier curves were constructed for patients in each EPO quartile.

**Results**

185 patients with complete data were included in analyses. Mean age was 81.8 years, 58.4% were male, and 72.4% had NYHA III/IV. Baseline anaemia was present in 51.4% and iron deficiency in 49.2%. Median ferritin was 149.5 (16-1995) µg/L, mean transferrin saturation index was 150±46.7% and median EPO was 13.8 (2.7-231.6) mU/mL.

Thirty-day and 1-year mortality were 3.8%, and 18.9%. Baseline anaemia was significantly associated to 1-year mortality: 29.5% vs 7.8%, p=0.001. Iron deficiency had no impact on mortality (18.1% vs 19.8%, p=ns). At 1 year, pre-procedural EPO levels in non-survivors were significantly higher than in survivors: median 20.30 (6.1-231.6) vs 12.9 (2.7-136) mU/mL; p =0.001.

Higher log-EPO levels predicted 1-year mortality in univariate analysis (HR 6.1, 95% CI 2.5-14.9, p=0.0001). Other significant univariate predictors were pre-procedural anaemia (HR 4.2, 95% CI 1.8-9.7, p=0.001), eGFR, EuroSCORE II, body mass index, and previous atrial fibrillation. A multivariate analysis of EPO after adjusting for such factors was also significant (HR 3.1, 95% CI 1.06-8.9, p=0.039). Kaplan-Meier analyses showed early diverging curves for anaemia vs non-anaemia, whereas the curves for patients in various EPO level quartiles started to diverge at about 100 days after the intervention, with differences consistently increasing during the whole follow-up period. Curve slopes were increasingly higher in successively higher quartiles (figure).

**Conclusion**

Differently from anaemia, a strong predictor for both early and late mortality after TAVR, high pre-procedural EPO levels were an independent predictor for mid-term mortality, with its predictive value only emerging after post-procedural recovery was completed. EPO predictive value was independent from anaemia or renal dysfunction.
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