A473 - Link between bioelectrical impedance analysis derived phase angle and late mortality in cardiac surgery patients

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Introduction:
Increasing age and frailty of patients undergoing cardiac surgery complicate the selection of patients. The aim of this study was to determine whether bioelectrical impedance analysis (BIA) phase angle is linked to long-term results after cardiac surgery and could be used as predictor.

Methods:
This observational retrospective study included all of the patients who underwent any of the STS defined elective cardiac surgery type from 2013 to 2014 at the Vilnius University Hospital. Patients who died in the hospital during the first post-operative month were excluded. BIA was performed prior surgery, demographic and comorbidity data were gathered in perioperative period. We evaluated 3-5 year all-cause mortality rate. Patients were categorized according to the BIA provided phase angle (PhA) value, which was standardized for age and gender; long-term predictors were determined by Cox regression analysis.

Results:
Among the cohort of 642 patients undergoing cardiac surgery, the median age was 67.8 [59 - 73] years; most of them were men (67.8%). Long term mortality rate was 12.3% (n=79). Most of the cases were low risk with median EuroSCORE II value of 1.78 [1.07 - 2.49]. The rates of standardized PhA were as follows: <5th 10.4% (n=67), <10th 17.3% (n=111), <15th 22.7% (n=146), <20th 27.6% (n=177), <25th 35.5% (n=228), <30th 42.2 % (n=271), <35th 47.4 % (n=304), <40th 52% (n=334), <45th 58.6% (n=386). The Cox regression analysis of all percentiles revealed the most potent predictor – phase angle value below 25th of the reference range (OR 2.42, 95% CI: 1.49-3.94, p<0.001), with a mean difference in survival of 13.22 months (64.60 vs 51.38 p<0.001). This relation persisted after adjustment with EuroSCORE II value.

Conclusion:
BIA provided phase angle value can be used for long-term survival estimation before cardiac surgery. However, further studies are needed to prove the independent effect of these assumptions.