Artery Research
Vol. **26**(**S1**); 2020, *p.* S37
DOI: https://doi.org/10.2991/artres.k.201209.029; ISSN 1872-9312; eISSN 1876-4401
https://www.atlantis-press.com/journals/artres

Conference Abstract

P.16 Expanding on the Observed Correlation between the Ambulatory Arterial Stiffness Index and the Lower Limit of Cerebral Autoregulation during Cardiac Surgery

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Keywords

Cerebral-autoregulation
cardiac-surgery
arterial-properties
blood-flow

ABSTRACT

Background: The lower limit of cerebral autoregulation (LLA) refers to the mean blood pressure (BP) below which cerebral blood flow becomes pressure-dependent, resulting, among others, in an increased stroke risk. The LLA measured during cardiac surgery, correlates with the vascular measure Ambulatory Arterial Stiffness Index (AASI) determined from intraoperative continuous radial BP before cardiopulmonary bypass [1]. Using these data we investigated added factors that may enhance this correlation.

Design and method: The study population included 167 patients undergoing cardiac surgery (age 71 ± 8 years, 68% males) with good-quality BP records. The AASI. Additionally tested predictors were body-mass index (BMI), the coefficient of variation (SD/mean) of the systolic BP (SBP_CV), the composite variables BMI*(1-AASI), and its linear combination with SBP_CV. The odds ratio (OR) was determined by applying logistic regression to dichotomized predictors (by medians) and LLA- (by selected thresholds) adjusted to age, sex, diabetes mellitus, heart rate and preoperative diastolic BP.

Results: The Table shows that the LLA of individuals correlated significantly with each of the (continuous) predictors, and the adjusted OR increased for the composite predictors (dichotomized), while showing insensitivity to adjustors. The ORs reached a maximum for a LLA threshold of 55 mmHg.

Conclusion: The newly-defined composite predictors that increased the likelihood of predicting a LLA higher than 55 mmHg enhances our knowledge regarding the cerebral vasculature and autoregulation, and BP variability determinants of LLA under anesthesia.

Table

Predictor	Univariate regression	Adjusted OR
	r (*p*-value)	Mean [95% CI] (*p*-value)
AASI	0.27 (0.0004)	2.41 [1.16–5.00] (0.02)
BMI	−0.26 (0.0007)	3.77 [1.78–8.00] (0.0005)
SBP_CV	−0.29 (0.0002)	3.50 [1.71–7.16] (0.0006)
BMI*(1-AASI)	−0.35 (0.000005)	4.51 [2.16–9.40] (0.00006)
80*SBP_CV + BMI*(1-AASI)	−0.44 (<0.000001)	8.20 [3.67–18.3] (<0.000001)

REFERENCE

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