PREOPERATIVE FACTORS ASSOCIATED WITH INTRAOPERATIVE MAXIMUM ARTERIAL PRESSURES IN PATIENTS WITH PHEOCHROMOCYTOMA AND PARAGANGLIOMA

Haruyuki Ohsugi*, Nae Takizawa, Hidefumi Kinoshita, Tadashi Matsuda, Osaka, Japan

INTRODUCTION AND OBJECTIVE: Mortality associated with surgery for pheochromocytoma and paraganglioma (PPGL) has dramatically decreased due to improvements in treatment, such as preoperative management. A recent study has shown that intraoperative hypertensive episodes occurred independently of perioperative α-receptor blockades. However, limited data are available about preoperative factors that predict intraoperative blood pressure. Therefore, the aim of this study was to identify preoperative factors associated with maximum arterial pressure during surgery in patients with PPGL.

METHODS: We retrospectively reviewed 61 PPGL patients who underwent surgical resection at Kansai Medical University Hospital between 2006 and 2020. The preoperative clinical data (comorbidity, classic triad [palpitations, headache, and sweating], and 24-h urinary-fractionated metanephrine [MN] and normetanephrine [NMN]) were analyzed. The primary outcome was intraoperative maximum arterial pressure as a single index for continuous variables. The normal distribution of the results was confirmed by the Kolmogorov-Smirnov test. A linear regression model was used for statistical analysis.

RESULTS: The median intraoperative maximum arterial pressure was 165 mmHg (IQR: 150–180). Although the 24-h urinary-fractionated MN and NMN was not normally distributed, the logarithmic representation (base=10) of these continuous variables showed a normal distribution (p = 0.549). Log (24-h urinary-fractionated MN and NMN) was correlated with intraoperative maximum arterial pressure (R=0.481, p < 0.001). Multivariate analyses showed that the classic triad (t statistic, 2.484; p=0.016), diabetes mellitus (DM) (t statistic, 2.097; p=0.040), and log (24-h urinary-fractionated MN and NMN) (t statistic, 2.506; p=0.015) were independent factors predictive of intraoperative maximum arterial pressure.

CONCLUSIONS: The classic triad, DM, and log (24-h urinary-fractionated MN and NMN) were significant factors for predicting intraoperative maximum arterial pressure. Since PPGL patients who have these predictors may develop intraoperative hypertension regardless of treatment with an α-receptor blockade, clinicians should manage these patients more carefully and effectively.