**Perioperative control of blood pressure using esmolol in a child with familial paraganglioma**

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**OBJECTIVES**

- Paragangliomas/pheochromocytomas: are rare neuroendocrine tumors originate from paraganglionic cells. They are extra or intra-adrenal in site (following the rule of 10%).
- Antihypertensive medications: Long acting alpha and beta blockade useful preoperatively but challenging postoperatively.
- We present a case of familial paraganglioma successfully treated by esmolol and other antihypertensive medications without associated perioperative complications.

**CASE REPORT**

- A 13-year-old girl, known case of Pheo/Paragnagliomas.
- Both her father and brother have similar masses, and CT abdomen showed right-sided paravertebral mass, therefore, treated as familial Paragnaglioma.
- Prazocin was started but she had uncontrolled fluctuations of a high blood pressure (BP). She initially developed a serious reaction to atenolol, therefore switched to esmolol that successfully controlled her BP alongside prazocin and intermittent doses of hydralazine with minimal fluctuations in BP.
- She then underwent laparoscopic surgery on esmolol and the diagnosis was confirmed by histopathology and genetic study.

**DISCUSSION**

- Preoperative management using alpha and beta blockade is crucial to prevent the intraoperative complications in Pheochromocytoma/Paraganglioma.
- Phenoxybenzamine, a long acting non-selective alpha blockade, has been widely used since 1950s. In addition, prazosin, a selective alpha 1 blockade, has been used in favor due to its short action, so it causes fewer side effects postoperatively.
- Beta blockade are generally used to suppress tachycardia, though they also help in control of BP, after alpha-blockers being started. There is no evidence to support the use of beta 1 blockade such as atenolol over the non-selective beta-blockers, which include propranolol.
- Two previous reports suggested the use of esmolol in adults. Esmolol showed a good effect as adjuvant therapy to alpha-blockers and its very short half-life of approximately 3 minutes helped to avoid post-operative complications due to sudden intravascular volume and pressure changes that usually requires meticulous care and possible need of using presser agents.

**CONCLUSIONS**

Esmolol is titrable, effective and can be weaned rapidly helping to avoid post-operative complications in pediatric Pheochromocytoma/Paraganglioma. Therefore, it can be a good alternative to propranolol and atenolol that are routinely used in these cases. Further study on its use is needed to confirm this observation.