Austin Journal of Anesthesia and Analgesia

Austin Publishing Group

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Editorial

The Undiagnosed Pheochromocytoma -Hemodynamic Crisis Following Anesthesia

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Received: November 19, 2013; Accepted: December 16, 2013; Published: December 27, 2013

Anesthesia and surgery in unsuspected pheochromocytoma patients have a high incidence of mortality [1]. In a postmortem series, 27% of patients with undiagnosed pheochromocytoma died during or shortly after surgery [2].

Headache palpitation, sweating and hypertension are considered to be 90% predictive of pheochromocytoma [3]. In the pregnant patient, these signs and symptoms may be misdiagnosed as preeclampsia or gestational hypertension.

Induction of general anesthesia in the undiagnosed pheochromocytoma patient can result in hypertension, tachycardia and excessive sweating. This triad of signs and symptoms can mimic the signs and symptoms of light general anesthesia. Management of the hypertension and tachycardia by deepening the level of anesthesia and/or administration of beta-adrenergic blocker may precipitate a hemodynamic crisis culminating in cardiac failure and acute pulmonary edema [4,5].

Nearly 50% of deaths in patients with unsuspected pheochromocytoma occur during anesthesia and surgery, or during parturition [6]. The factors triggering intraoperative pheochromocytoma crisis can be attributed to excessive release of catecholamines from the undiagnosed tumor secondary to anxiety of the awake patient, or secondary to light general anesthesia during surgery.

In the pregnant patient having pheochromocytoma, excessive uterine contractions or fetal movements, as well as normal vaginal delivery or Cesarean section may precipitate the crisis; the symptoms and signs mimic that of severe preeclampsia. However, preeclampsia is associated with hypertension and proteinuria usually after the 20th week of gestation, while pheochromocytoma is rarely associated with proteinuria and may cause hypertension throughout pregnancy [7].

Pheochromocytoma during pregnancy [7,8] is difficult to diagnose, and may mimic the usual signs and symptoms of preeclampsia. Paraxysmol attacks during surgery may be precipitated by postural changes, the mechanical effects of the gravid uterus in the last trimester, uterine contractions during labor or increased fetal movements. Pheochromocytoma in the pregnant woman can mimic the signs and symptoms of preeclampsia and therefore is often missed. However, hypertension associated with pheochromocytoma is seldom accompanied by oedema or proteinuria, while glyconuria is often present. Fortunately, administration of Mg sulphate can be used for management of both preeclampsia and pheochromocytoma [9].

Patients with undiagnosed pheochromocytoma undergoing incidental surgery may develop intraoperative hemodynamic crisis manifesting as hypertension and tachycardia. The case may be misdiagnosed as light anesthesia; deepening the level of anesthesia and the administration of beta adrenergic blocker without prior α-adrenergic blocker may be complicated by cardiac failure and acute pulmonary edema secondary to its negative inotropic effect associated with an increased after load.

Management of the intraoperative pheochromocytoma crisis consists of elimination of the triggering factors, as well as the administration of short-acting vasodilators such as the alpha-adrenergic blocker phentolamine or sodium nitroprusside infusion.

When the pheochromocytoma is surgically accessible during incidental surgery as laparotomy or Cesarean section, the surgeon may be tempted to excise the tumor. However, tumor handling in unprepared pheochromocytoma patient may result in dramatic increase of arterial blood pressure followed by intractable hypotension after tumor excision. A safer option is planned resection of the pheochromocytoma after confirmation of the diagnosis and optimal preoperative pharmacologic preparation [10].

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Citation: Baraka A. The Undiagnosed Pheochromocytoma -Hemodynamic Crisis Following Anesthesia. Austin J Anesthesia and Analgesia. 2013;1(1): 1004.

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Austin J Anesthesia and Analgesia - Volume 1 Issue 1 - 2013
ISSN : 2381-893X | www.austinpublishinggroup.org

Citation: Baraka A. The Undiagnosed Pheochromocytoma -Hemodynamic Crisis Following Anesthesia. Austin J Anesthesia and Analgesia. 2013;1(1): 1004.