Myocardia Infarction

Muhammad Ashraf Zia and Taifur-ul-Islam Gilani

Introduction

Pheochromocytoma is a rare catecholamine-secreting tumor derived from chromaffin cells. Tumors that arise outside the adrenal gland are termed extra-adrenal pheochromocytomas or paragangliomas. Because of excessive catecholamine secretion, pheochromocytomas may precipitate life-threatening hypertension or cardiac arrhythmias. If the diagnosis of a pheochromocytoma is overlooked, the consequences could be disastrous, even fatal. However, it is potentially curable.[1]

The clinical manifestations of pheochromocytoma result from excessive catecholamine secretion by the tumor. Catecholamines typically secreted, either intermittently or continuously include norepinephrine and epinephrine and rarely dopamine. The biological effects of catechoamines are well known. Stimulation of alpha-adrenergic receptors results in elevated blood pressure increased cardiac contractility, glycogenolysis, gluconeogenesis, and intestinal relaxation. Stimulation of beta-adrenergic receptors results in an increase in heart rate and contractility.[2]

The classic history of a patient with a pheochromocytoma includes spells characterized by headache, palpitations and diaphoresis in association with severe hypertension. These 4 characteristics together strongly suggest Pheochromocytoma.[3] In the absence of these 3 symptoms and hypertension, the diagnosis may be excluded. The spells may vary in occurrence from monthly to several times per day, and the duration may vary from seconds to hours. Typically, they worsen with time, occurring more frequently and becoming more severe as the tumor grows.

Surgical removal of these tumours is curative. However these patients need special pre operative management. Phenoxybenzamine (Dibenzyline) is the preferred alpha-blocker in preparation for surgery. After effective Alpha blockade, administer a beta-blocker. Bata-blockers are needed to control the tachycardia associated with high circulating catecholamine levels and alpha blockade. Beta-adrenergic blockers are used if significant tachycardia occurs after alpha blockade.[4] Administer beta-adrenergic blocker after adequate alpha blockade only, because unopposed alpha-adrenergic receptor stimulation can precipitate a hypertensive crises. Non cardioselective blockers, such as propranolol (Inderal) or nodolol (Corgard), are often used: however, cardioselective beta-bloker such as atenolol (Tenormin) and metoprolol (Lopressor) may also be used.

During surgery, intravenous phentolamine, a rapid-acting alpha-adrenergic antagonist, is used to control blood pressure. Rapid-acting intravenous beta-blockers, such as esmolol, are also used to normalize blood pressure. selective alpha1-blocking agents, such as prazosin (Minipress), terazosin (Hytrin), and doxazosine have more favorable adverse effect profiles and are used when long-term therapy is required (metastatic pheochromocytoma). These medications are not used to prepare patients for surgery because of their incomplete alpha blockade.[5]

Case History

This is the case history of patients Ghulam Zohra 18years / Female admitted in surgical ward on 21-07-05 with history of headache, palpitation and spells of hypertension. She was diagnosed as a case of pheochromocytoma. She had myocardial infection 6 months ago which was treated by admission in DHQ Sahiwal.

Her echocardiography revealed good systolic function and ejection fraction 63%. She was prepared for surgery in surgical ward by giving Propranolol and Hydroxazosine orally till the desired blood-pressure and heat rate was achieved.

On 06-08-05 she was brought to the operation room for resection of tumour At that time her blood-pressure was 120/93, H/R 84/min and SPO2 96% on room air. She was given injection nalbuphine 20mg and inj. Midazolam 5mg after geting I/V line with 18G canula.

Induction was done by injection propofol 120mg mixed with xylocaine injection Vecuroniun bromide 6mg and isoflurane 1%. Intubatoin was done with 7.0 no endotracheal tube. At that time BP was 114/78, SpO2 99% and H/R was 86/min.

Intra-arterial line was passed and invasive blood

pressure monitoring started. CVP line was passed thought right subclavian route. Anesthesia was maintained by O2, N2O, isoflurane 0.6-1.2% and Vecuroniun bromide. Blood pressure fluctuation was noted between 80/40 to 220/110 which was controlled by using infusion of isoket along with titrated doses of metoprolol, phentolamine, hydralazine and propofol.

Fluids used were inj. haemaccel 1000ml and inj. ringer lactate 1000ml. CVP was kept in the range of 6-8 cm H2O. Tumour was removed after clamping the vein and blood pressure came to 90/60. Adrenaline infusion was started and blood pressure was maintained by inj. Ephedrine with incremental doses.

Patient was extubated successfully and shifted to surgical ICU, where she was monitored for two days. Blood pressure was maintained by adrenaline infusion which was tappered down in two days and patient was shifted to surgical floor.

Conclusion

Surgery for pheochromocytoma poses a great challenge to both anesthesiologist and surgeon but with careful and invasive monitoring and using specific antihypertensive agents surgery can be managed successfully.

Department of Anaesthesiology, Services Institute of Medical Science (SIMS) / Services Hospital Lahore.
esculapio@sims.edu.pk
www.sims.edu.pk/escuplapio.html

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