Diagnosis, Pathophysiology, and Clinical Treatment of a Patient with a Pheochromocytoma

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**Pathophysiology, Signs & Symptoms**

Pheochromocytomas are tumors of the chromaffin cells, most commonly positioned on the adrenal medulla [8], although sometimes occur throughout the abdomen and thoracic regions, their known as paragangliomas [5]. Studies have indicated the majority of pheochromocytomas are idiopathic in nature, with one-fourth of diagnoses containing a genetic component. Both are usually diagnosed between the ages of thirty-five and fifty-five [5]. It is estimated that a PCC is present in four to five percent of the hypertensive population. They seem to occur equally between men and women [8]. They are challenging to diagnose, as they often appear dormant. When active, excessive catecholamine release causes a hypertensive population. Alpha- and beta-adrenergic blockers are commonly administered. Traction of these vascular structures is often performed on an inpatient unit for lighter control. Ultimately, if the patient is a candidate, surgical removal of the pheochromocytoma is the best treatment option. Surgery can be performed through a laparoscopic approach or by open incision adrenalectomy. Risk factors are reviewed to determine the most appropriate procedure. These include tumor size, patient age, body mass index, and known anesthesia complications [2]. Vital signs are closely monitored and controlled, before, during and after the procedure [3]. Surgery alone is often a cure, although chemotherapy may accompany the post-surgical regimen at times.

**Implications for Nursing Care**

The informed nurse can be of great importance when diagnosing the cause of hypertension. By obtaining a detailed history of both chronic and intermittent symptoms, a pattern can be established. This pattern is vital when considering a diagnosis of a pheochromocytoma. Once diagnosed, the nurse must educate the patient regarding symptoms, emphasizing the importance of early diagnosis and management when to seek immediate care. Stress reduction and lifestyle modification are important treatment modalities. Nurses must develop a care plan to teach their patients regarding the effect of weight management, diet and exercise, and non-stress inducing activities. Evaluating vital signs, medication effectiveness, reporting important findings to the physician, monitoring glucose levels, and assisting with pain control are all important nursing responsibilities, both prior to and following surgery.

**Diagnosis**

A diagnosis of PCC is made based on increased serum and urine catecholamine and catecholamine metabolite levels. Plasma free metanephrine measuring, done by immunoassay, has been declared more sensitive and accurate than measuring urine catecholamine levels. Positive levels are considered those over 90 ng/l and 125 nmol/day, respectively [8]. Unfortunately, many false-positive test results occur related to the low number patients afflicted with a tumor of this sort. Elevated results also do not distinguish between the presence of a pheochromocytoma or a paraganglioma. Once, critical levels are identified, radiological studies, such as cat scan and magnetic resonance imaging, are then performed to confirm location and size [6].

**References**