

Long Term Effects of Surgical Resection of Pheochromocytoma or Paraganglioma on Body Weights: A Retrospective Cohort Study

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Background: Removal of catecholamine secreting tumors have beneficial effects on BP control but long term effects on body weight and anthropometric measurements are not known. The study objective was to assess the trajectory of body weights in patients with pheochromocytoma (PCC) and paraganglioma (PGL) before and after surgical resection.

Methods: We conducted a retrospective chart review of all patients with new diagnosis of PCC/PGL from 2001 to 2011 who underwent surgical resection at Penn and had at least 2 years of follow up. Body weights were reviewed immediately prior to surgery, and at four time points (4-6 weeks, and 6, 12, and 24 months) postoperatively.

Results: Follow up data from 37 patients was available. Mean age of patients was 49.1 years with 62% females. Sporadic PCC/PGL was seen in 27 (72.0 %), MEN 2A in 1 (2.7%), neurofibromatosis in 1 (2.7%), vHL in 1 (2.7%), SDHD mutations in 3 (8.1%), SDHB mutations in 3 (8.1%). Laparoscopic tumor resection was performed in 48%. Hypertension was cured in only 36% while it persisted in 64%. Mean weight preoperatively was 84.1 ± 19.9 kg; postoperative weight trend was 82.5 ± 19.2 kg, 83.2 ± 18.1 kg, 86.9 ± 20.5 kg and 88.0 ± 21.0 kg at 4-6 weeks, 6, 12, and 24 months, respectively. The mean 2 year weight gain was 3.9 ± 5.8 kg which was statistically significant (p=0.002).

Conclusions: Significant and sustained weight gain consistently occurred after successful removal of PCC/PGL. This underscores the long term role of catecholamines on resting energy expenditure. Chronic persistence of hypertension may be due to normalization of catecholamines with decreased metabolic rate and resultant weight gain. Clinical relevance includes use of body weight as a surrogate marker of successful tumor resection. Weight loss and hypertension exacerbation may be potential clinical markers of tumor recurrence.