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Adrenal

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Challenging the Status Quo: Are Routine Post-Operative Day 1 Non-Endocrine Labs Necessary After Adrenalectomy?

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Background: The Choosing Wisely campaign from the American Board of Internal Medicine (ABIM) Foundation

has scrutinized the practice of routinely ordering tests that offer limited or no benefit to patients, and have the potential to cause harm. Although postoperative day 1 (POD1) hormonal testing is necessary for certain patients who undergo adrenalectomy (i.e. those with functional tumors), the clinical utility of routinely checking POD1 non-endocrine labs is unclear, particularly in patients with non-functional adenomas. We sought to investigate how often these non-endocrine labs were abnormal after adrenalectomy and whether they represent value-added care.

Methods: Patients who underwent open or laparoscopic adrenalectomy at our institution from 2011-2020 were identified, and those with non-endocrine serum labs (hemoglobin, potassium, creatinine, or glucose) obtained before 0800 on POD1 were analysed. The frequency of abnormal labs, and any associated intervention(s), was recorded. Exclusion criteria varied by lab type and included: preoperative hemoglobin <8 g/dL or intraoperative blood transfusion (hemoglobin analysis), presence of chronic kidney disease (potassium and creatinine analyses), diagnosis of primary aldosteronism (potassium analysis), and pheochromocytoma or diabetes mellitus (glucose analysis). Costs were calculated using the 2020 Medicare Clinical Laboratory Fee Schedule.

Results: Of 936 patients (56% female) who underwent adrenalectomy (92% laparoscopic), 91% (n=847) had ≥ 1 POD1 non-endocrine lab drawn. Only 0.4% (n=3) of 785 eligible patients had an abnormal POD1 hemoglobin (<8 g/dL), and 1 patient received a blood transfusion. Potassium abnormalities were present in 3.4% (n=21) of 624 eligible patients, including 9 with hypokalemia (<3.5 mmol/L) and 12 with mild hyperkalemia (5.5-5.9 mmol/L). Specific interventions for hypo/hyperkalemia were required in 5 patients (0.8% of all potassium values). AKI (creatinine increase of 0.3 g/dL or ≥ 1.5 x baseline) was diagnosed in 4% of 759 eligible patients (n=28) and all were stage 1. Hyperglycemia (>180 mg/dL) was identified in 1% (n=6) of 577 eligible patients, and 1 patient received short-acting insulin. Of a total of 2,745 lab values, while only 2% were abnormal, the total aggregate cost of routine POD1 labs was ~\$17,000 during the study period.

Conclusions: Routine POD1 hemoglobin and creatinine testing are rarely abnormal after adrenalectomy and infrequently impact clinical management. Although patients with functional disease may require monitoring of electrolytes and/or glucose on POD1, in the current era of value-based healthcare, routine ordering of these labs may be unnecessary in selected patients with non-functioning tumors.

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