

### OBJECTIVE

Clinicians in Alberta investigate for suspected Cushing's syndrome including selecting optimal laboratory tests and timely referral to an endocrinologist

### TARGET POPULATION

Adults and children exhibiting clinical features of Cushing's syndrome

### EXCLUSIONS

None

## RECOMMENDATIONS

- ✓ Refer to endocrinologist as soon as Cushing's syndrome is suspected
- ✓ Order a 24 hour urine collection for cortisol
- ✓ Order a urine creatinine to ensure a complete 24 hour urine collection
- ✓ Consider repeating tests if results are borderline values
- X DO NOT order serum cortisol levels. They have low predictive value and are not recommended

### Cushing's Syndrome Clinical Features

- Central obesity
- Severe fatigue and muscle weakness
- Hypertension
- Hyperglycemia
- Easy bruising
- Striae
- Hirsutism and irregular menses in women

## BACKGROUND

Cushing's syndrome is relatively rare. Studies suggest that the incidence of Cushing's syndrome is 10 per million or approximately one in 5,000 hospital admissions.<sup>1</sup> Most cases of Cushing's syndrome occur between the ages of 20 and 50 years. Cushing's syndrome is the result of glucocorticoid excess, which can be endogenous or exogenous.

Endogenous causes of Cushing's syndrome in order of frequency are: pituitary adrenocorticotrophic hormone (ACTH) secreting tumours, neoplastic disease (especially small cell carcinoma of the lung) and primary adrenal tumours. Other causes of elevated urinary cortisol include depression and

alcohol excess. In some studies, the diagnostic sensitivity and specificity of urinary free cortisol were 100 and 98% respectively. However, it is recognized that 5% may have normal levels due to episodic secretion, and 5% of obese persons may have increased cortisol levels.<sup>1-3</sup>

The 1.0 mg dexamethasone overnight suppression test has also been used to diagnose Cushing's syndrome. Although this test has a 95% diagnostic sensitivity, acute illness, psychiatric disorders, obesity, alcohol use and sleep apnea can reduce the specificity by decreasing suppressibility of plasma cortisol. A normal test result (0800 h AM cortisol <50 nmol/L) generally excludes the possibility of Cushing's syndrome.<sup>4</sup>

## REFERENCES

1. Aron DC, Findling JW, Tyrell JB. Cushing's disease. *Metab Clin North Am.* 1987;16(3):705-31.
2. Findling JW, Doppelman JL. Biochemical and radiologic diagnosis of Cushing's syndrome. *Metab Clin North Am.* 1994;25:511-37.
3. Mengden T, Hubmann P, Muller J, et al. Urinary free cortisol versus 17-hydroxycorticosteroids: a comparative study of their diagnostic value in Cushing's Syndrome. *Clin Investig (Lond).* 1992;70:545-8.
4. Orth DN. Cushing's syndrome. *N Engl J Med.* 1995;332:791-801.

### ***SUGGESTED CITATION***

Toward Optimized Practice (TOP) Endocrine Working Group. 2008 January. Laboratory endocrine testing: Cushing's syndrome clinical practice guideline. Edmonton, AB: Toward Optimized Practice. Available from: <http://www.topalbertadoctors.org>

For more information see [www.topalbertadoctors.org](http://www.topalbertadoctors.org)

### ***GUIDELINE COMMITTEE***

The committee consisted of representatives of family medicine, general medicine, medical biochemistry, pathology, internal medicine, endocrinology, laboratory technologists and the public.

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