

Emergency use of etomidate in acute steroid psychosis for an adrenal cancer causing Cushing's syndrome

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Introduction: The psychiatric consequences of inoperable Cushing's syndrome can be difficult to manage medically. Etomidate, an imidazole derived anaesthetic agent, inhibits cortisol synthesis and may be useful in this circumstance.

The case: A 57-year-old woman presented with symptoms and signs of hypercortisolism. She gave a history of recent onset intermittent right sided stabbing chest pain and worsening breathlessness.

Two 24 h urinary free cortisol measurements confirmed the diagnosis of hypercortisolism. Imaging showed a 14.6×11.2×12.4 cm adrenal mass, with an intra-hepatic IVC thrombus extending into the right atrium and left pulmonary artery.

A provisional diagnosis of a cortisol secreting adrenal adenocarcinoma was made. On multidisciplinary review, the tumour was deemed inoperable. She was started on metyrapone 250 mg 8 hourly and reviewed 3 days later, where she admitted to medication non-adherence and exhibited symptoms of a florid acute steroid psychosis.

To facilitate management a decision was made to treat her with etomidate to reduce steroid levels. She was sedated and ventilated and given 7 mg/h of etomidate in the ITU. Daily 09.00 cortisol levels showed rapid resolution of her cortisol levels. She was subsequently successfully extubated and was expected to restart the metyrapone. However, she suddenly deteriorated and died. Post mortem examination ascribed the cause of death to possible systemic sepsis or a systemic inflammatory response secondary to the necrotic adrenal cancer.

Discussion: Etomidate inhibits 11 β hydroxylase activity (1) with a swift decrease in cortisol synthesis. Rise in mortality on the intensive care unit coincided with introduction of etomidate as a 'safe' induction agent (2). The rationale behind the clinical decision to use this drug should be fully explained to patient, and when possible their informed consent should be obtained. Etomidate is an effective steroidogenesis inhibitor (3,4). Research is needed, to explain and possibly avoid the higher mortality associated with its use.
