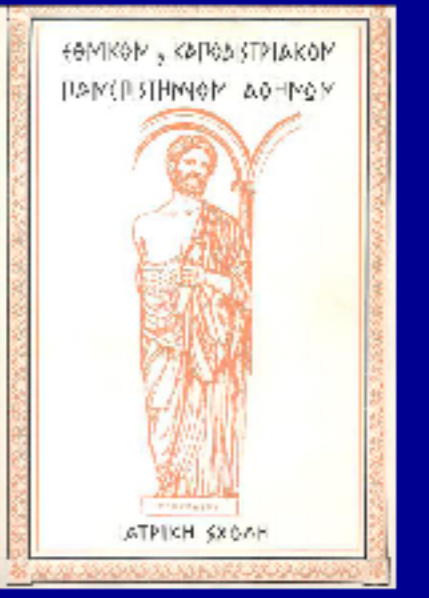


A case series of etomidate use in ACTH ectopic syndrome in endocrine neoplasms

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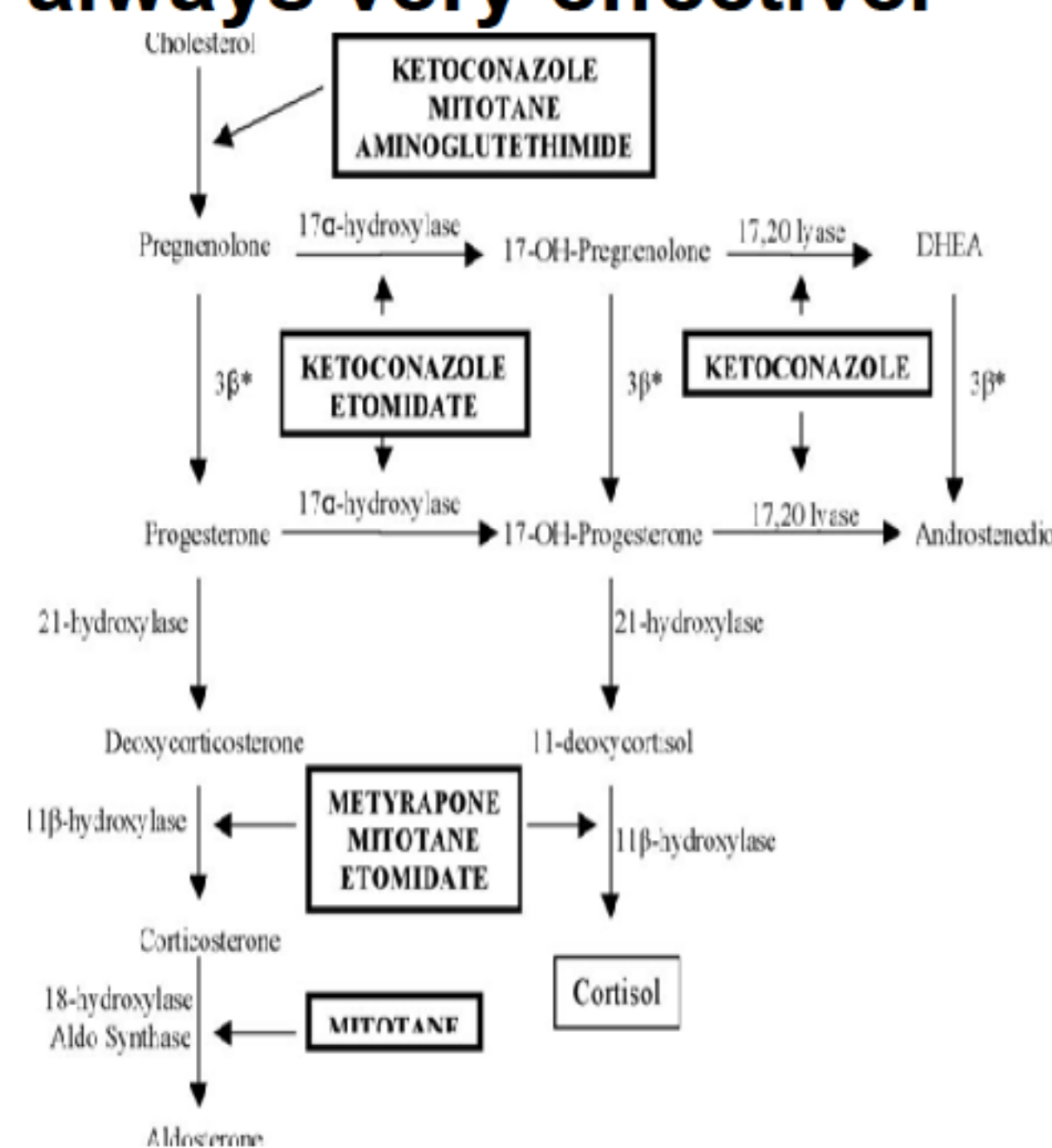
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Aim of Study

Describe etomidate use in cases of uncontrolled hypercortisolemia due to ACTH ectopic syndrome in endocrine neoplasms

Introduction

Etomidate is an imidazole derivative which inhibits several enzymatic steps (11 β -hydroxylase, 17 β -hydroxylase, 17,20-lyase, cholesterol side-chain cleavage). Intravenous etomidate at sub-anaesthetic doses remains an important option when intravenous administration is required for rapid treatment of severely ill patients with hypercortisolemia (Cushing's syndrome, CS) and is almost always very effective.



A review of 18 studies, 43 cases (age 6-73 years); January 1946 to April 2012
 Etomidate administration 5hrs to 5.5 months
 ❖ cortisol levels within 12-24 hrs
 ❖ Intravenous administration 0.04 – 0.05mg/kg/h=2.5-3mg/h
 ❖ Inhibition (partial/total) cortisol production with regards to clinical performance
 ❖ Continuous monitoring: cortisol levels, potassium, grade of suppression

Cases Illustration

Case 2: A 72-year-old man
 - Atypical lung neuroendocrine neoplasm (NEN) (T1aNxMx, Ki-67: 4-7%) and ectopic secretion of ACTH (ACTH: 78.7 pg/ml)
 -Surgical removal of the primary tumor followed by chemotherapy [Cisplatin-Etoposide; Temozolomide-Capecitabine] and somatostatin analogs



- Disease recurrence 6 years later
 -Metyrapone and ketoconazole treatment: no adequate control of CS (pre-treatment-UFC: 709 mg/24h, post-treatment-UFC: 416 mg/24h)

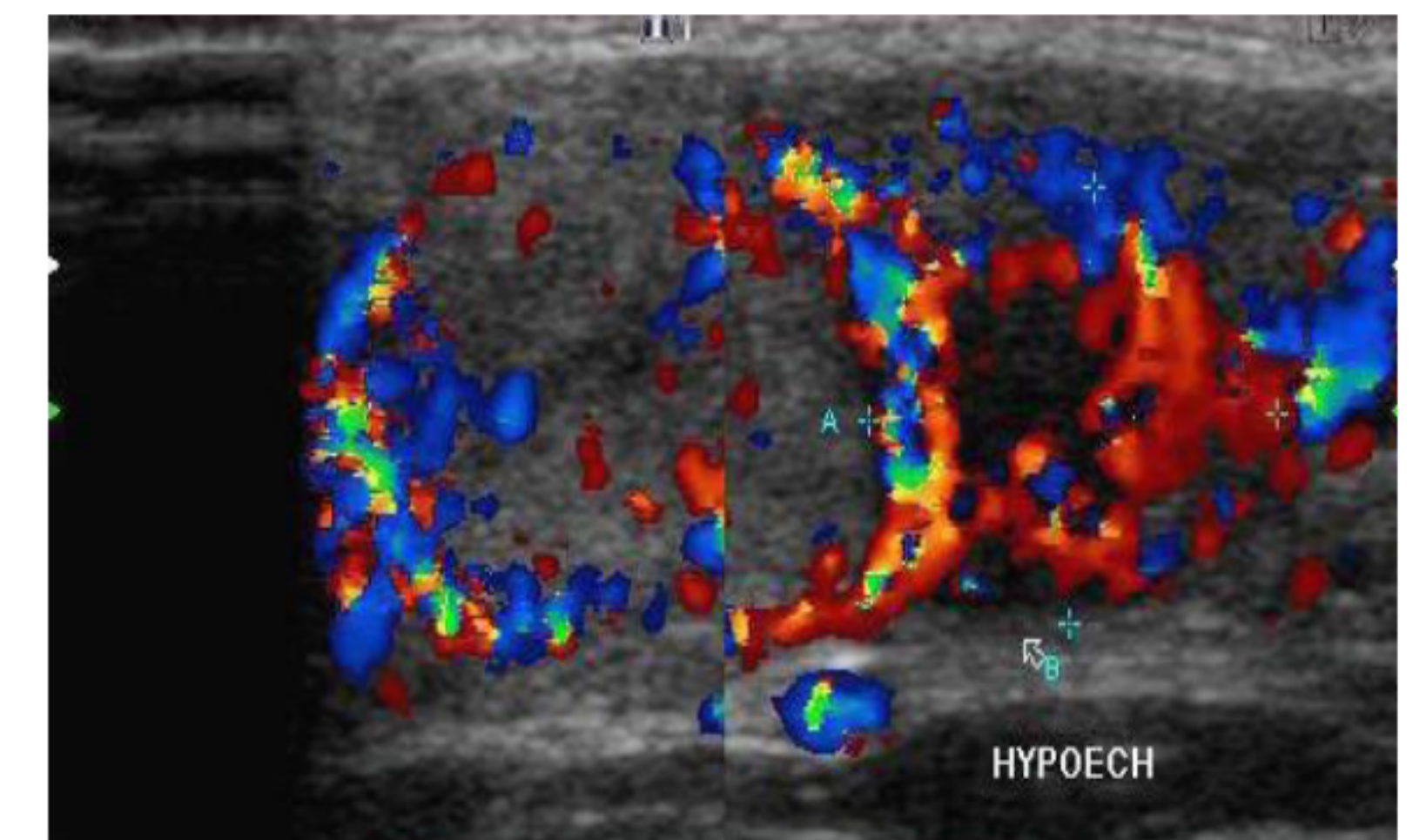
Etomidate was administered at a dose of 3-3.3 mg/h intravenously

	Pre-treatment	Post-treatment
Cortisol levels (6.2 – 19.4 μ g/dl)	44	23

Bilateral adrenalectomy was performed and hypercortisolemia was controlled

Case 3: A 51-year-old woman

-Medullary thyroid carcinoma (T3NxM1, stage IV), liver metastases and ectopic secretion of ACTH (ACTH: 153pg/ml, F: 74 μ g/dl)



Thyroidectomy without resolution of CS

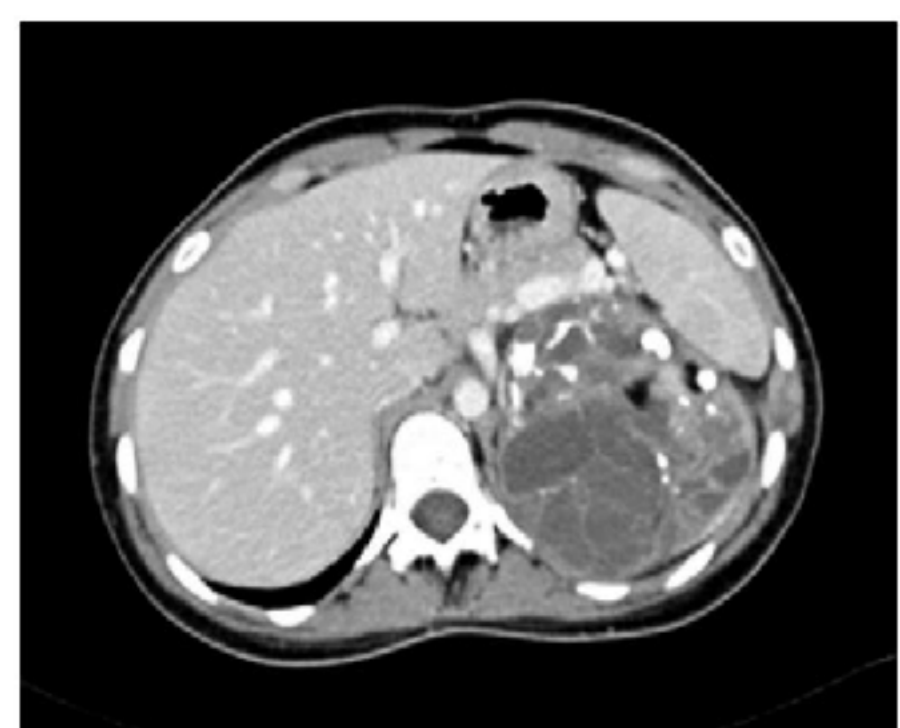
- Etomidate intravenously at a dose of 2.6 mg/h with a decrease in cortisol levels (pre-treatment-F: 273.8 μ g/dl, post-treatment-F: 79.2 μ g/dl).

The patient died because of a septic shock two days later

Cases Illustration

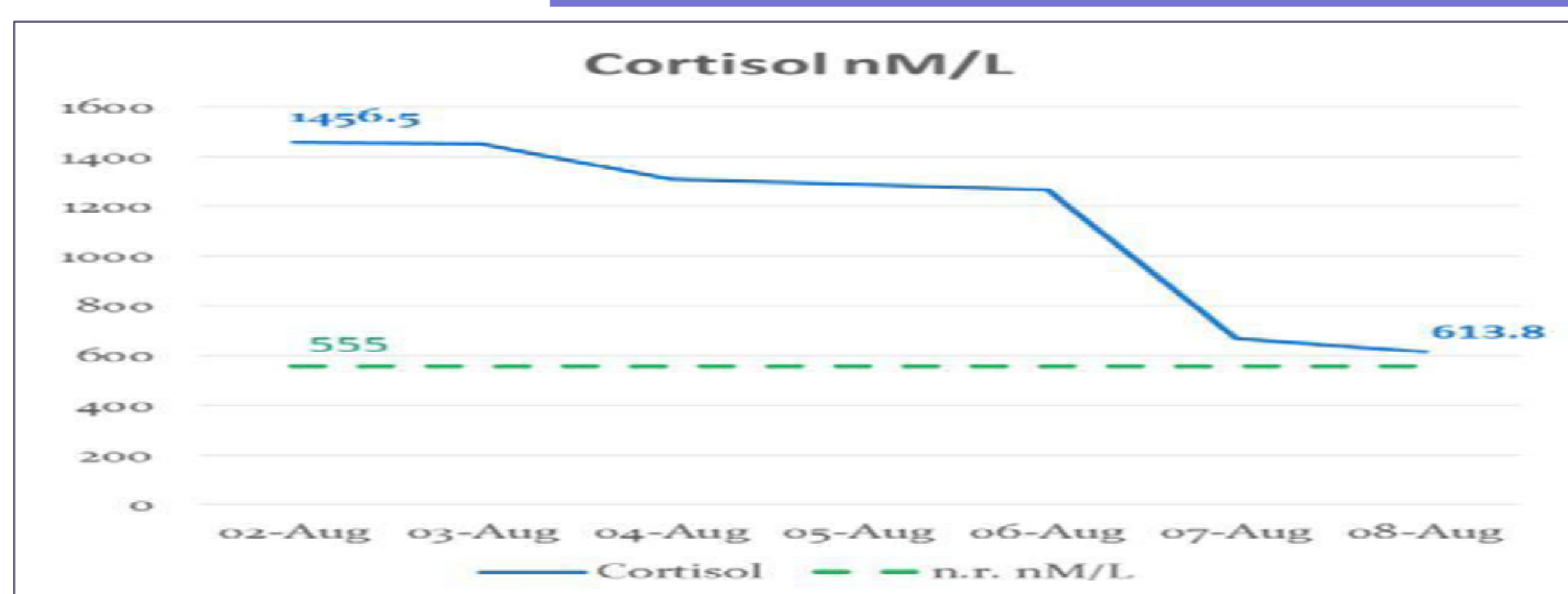
Case 1: A 49-year-old woman

- Left adrenocortical carcinoma (ACC) [T4N1M1, stage IV ENSAT 2008, Ki-67: 15%] and CS.



Recurrence 6 months after surgical removal of the primary tumor while she had received chemotherapy and adrenergic therapy: new liver metastases and \uparrow cortisol values with recurrence of CS

She received 2.4 mg/h of etomidate intravenously for 7 days



The patient died because of sepsis one month later

Summary of patients outcome

Hypercortisolemia controlled in all patients
 2 out of 3 patients died because of sepsis before their definitive treatment with bilateral adrenalectomy

Conclusions

Etomidate may be used as first-line treatment in severely ill patients with CS. However, it needs to be very carefully monitored, because of sedation that may be apparent in higher doses, and adjustments should be made with regards to renal failure and stressed situations such as sepsis.

References

- Gross et al. Neurosurg Focus. 2007;23:E10
- Preda et al. European Journal of Endocrinology (2012), 167 137-143

