

Update on adrenal disease for the diabetes physician



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Areas to cover

Adrenal replacement: **day-to-day
emergency**

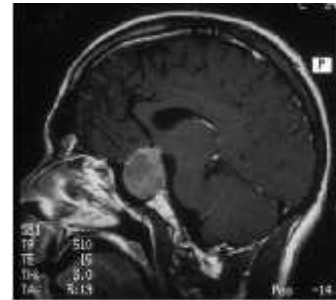
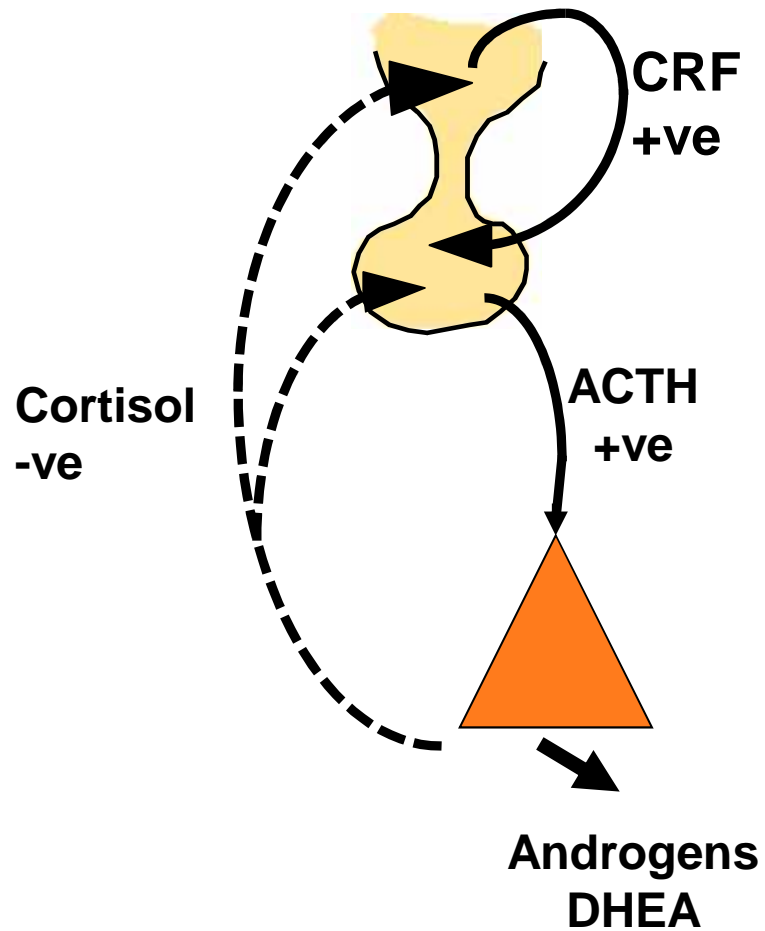
Primary aldosteronism

Suspicion and diagnosis of phaeo's

(Adrenal incidentalomas)



Adrenal insufficiency: not one entity



Hypopituitarism



Addison's



CAH



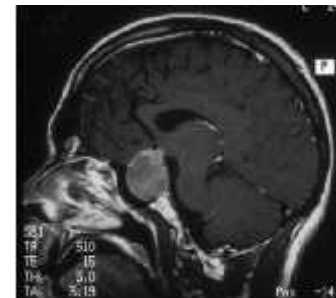
Compare and contrast.....

Type 1 DM

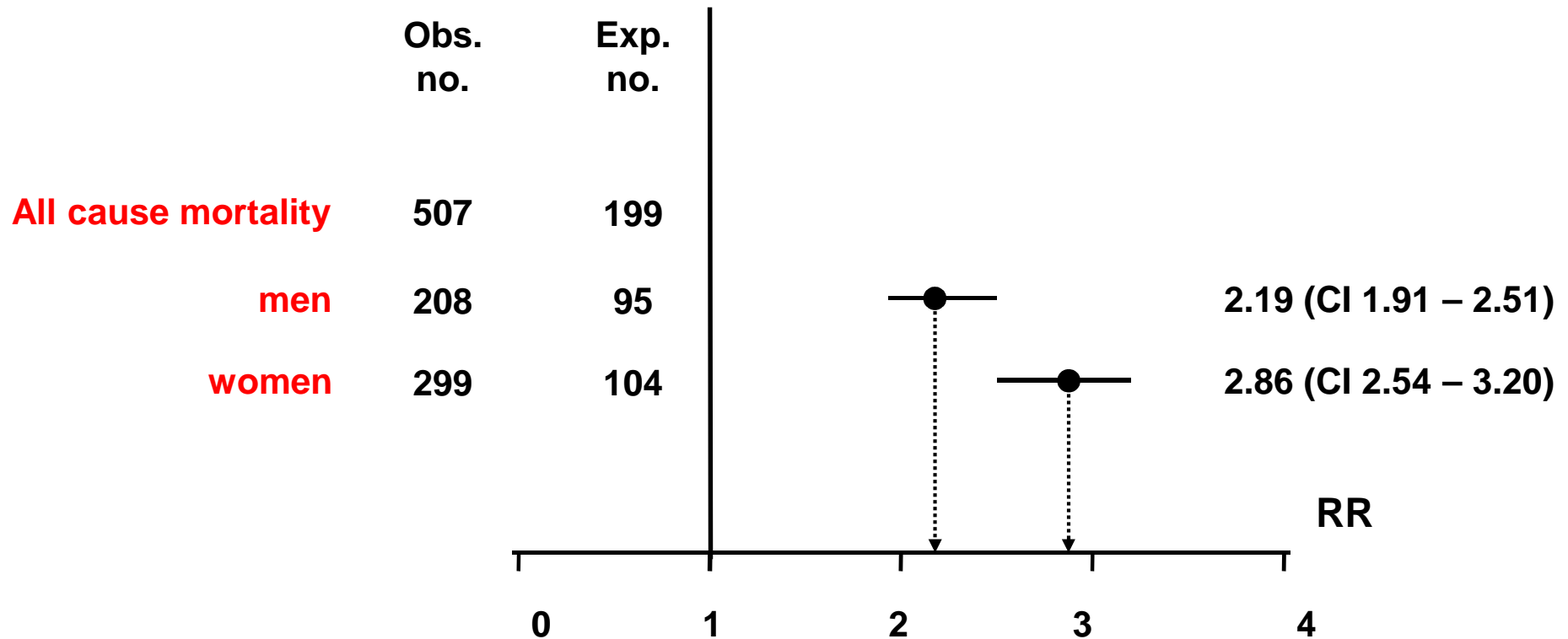
Type 2 DM

Addison's

Hypopituitarism



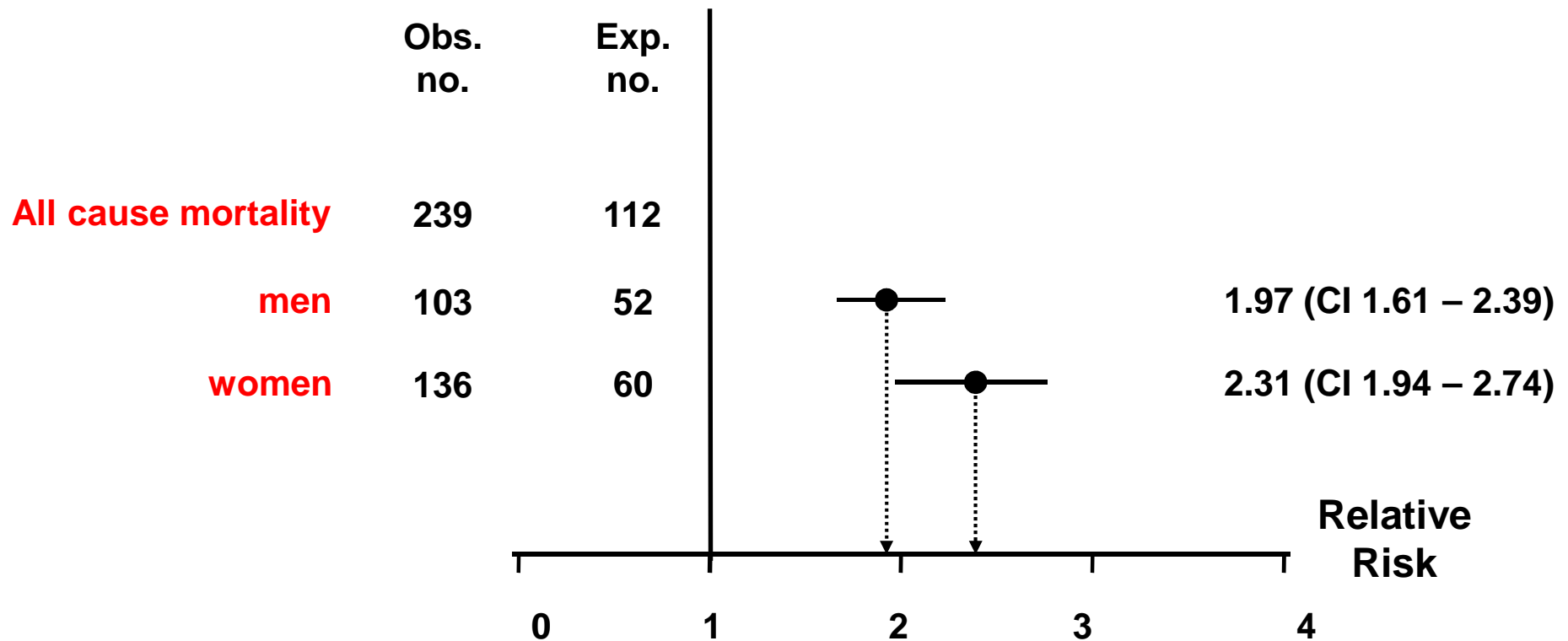
Addison's disease: all cause mortality



Bergthorsdottir R et al. JCEM 2006



Addison's disease: vascular mortality

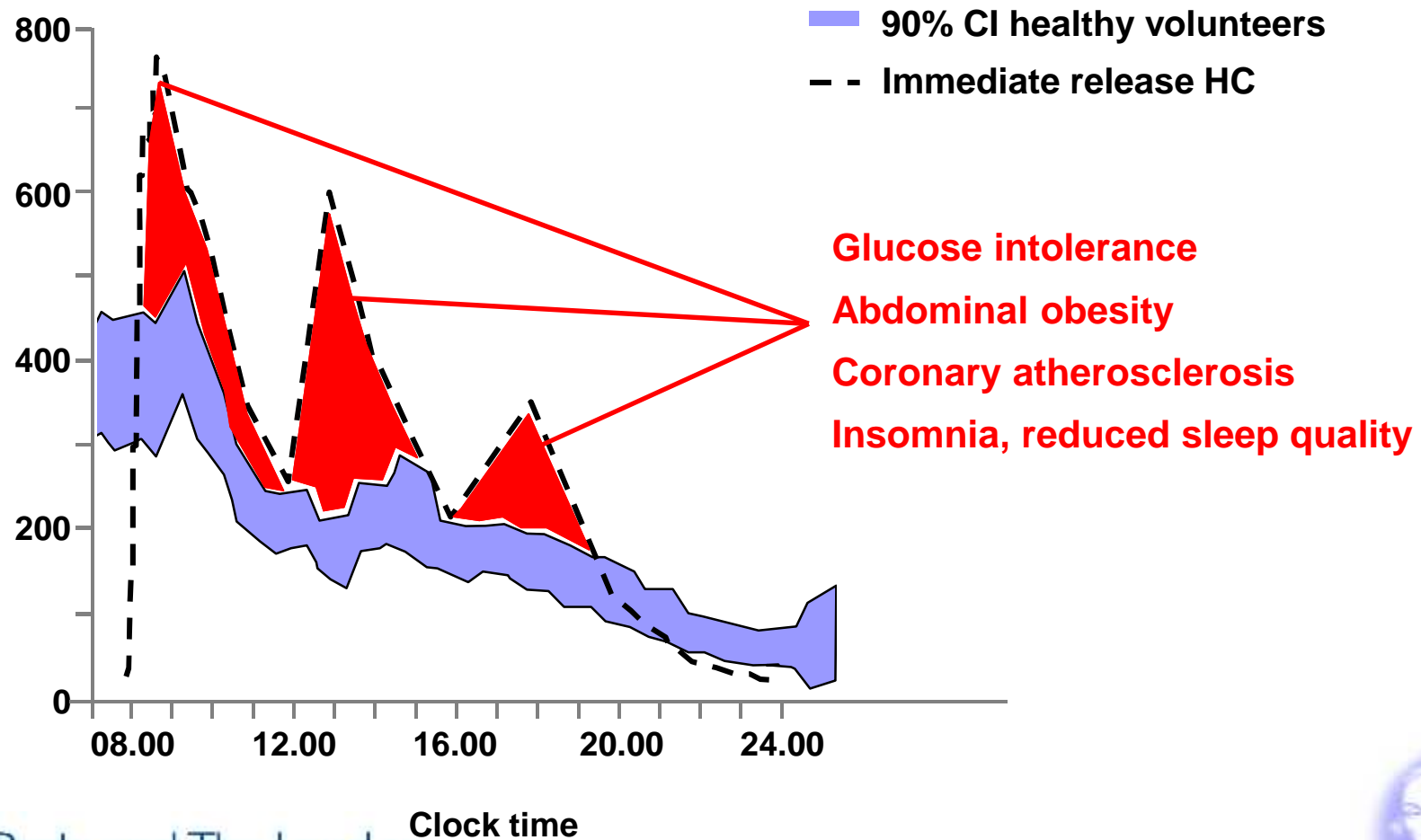


Bergthorsdottir R et al. JCEM 2006



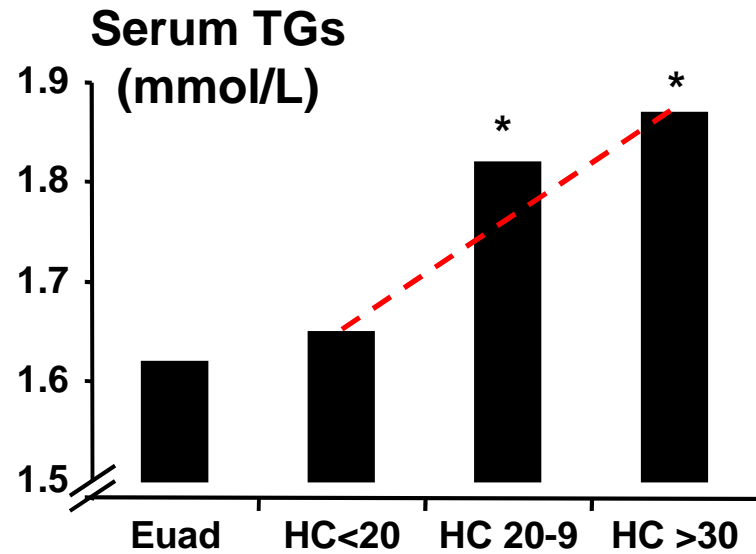
Serum cortisol: normal physiology vs TDS HC

Serum cortisol
(nM)



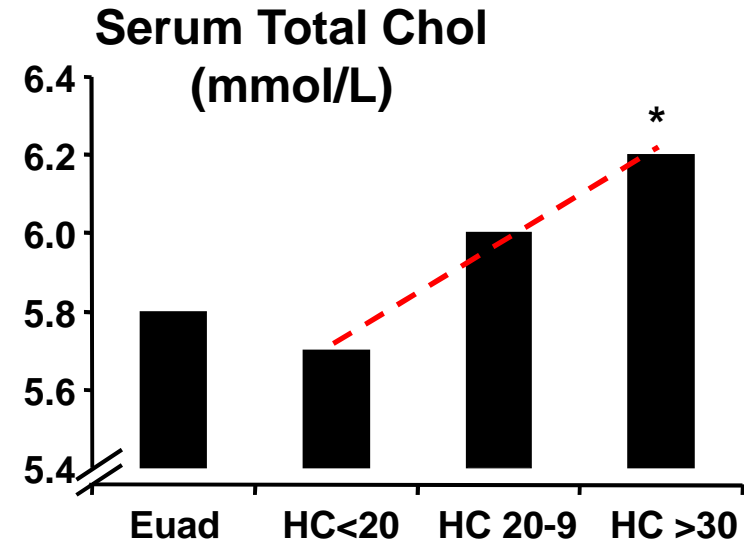
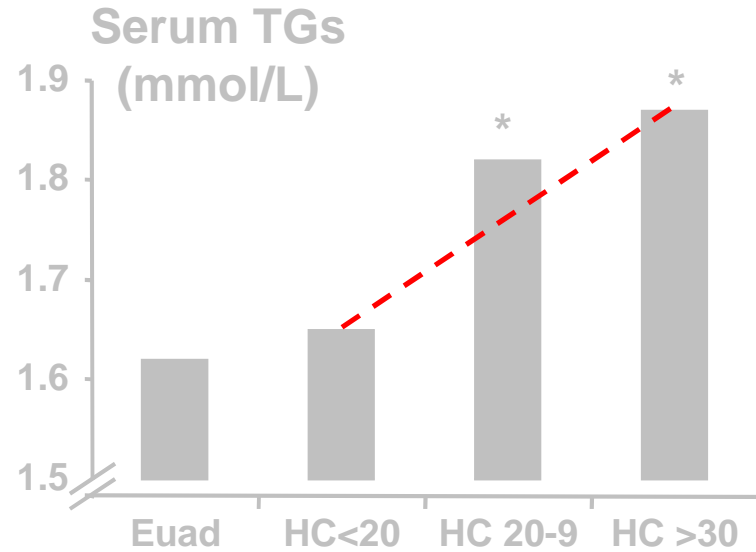
Hypopituitarism: glucocorticoid replacement

Filipsson et al JCEM 2006



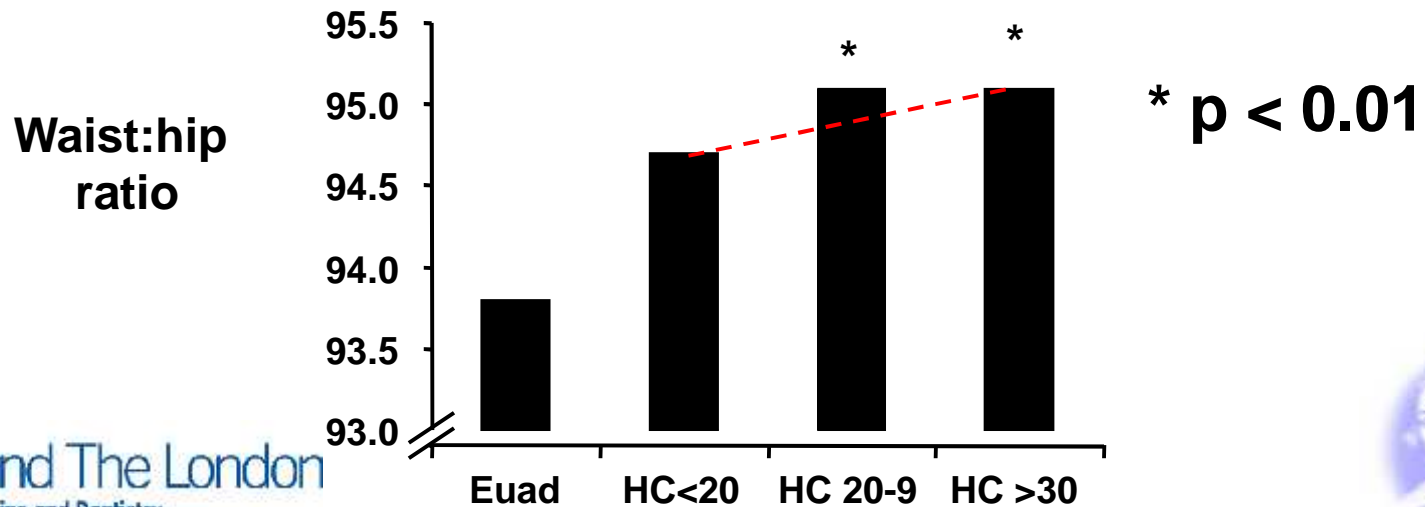
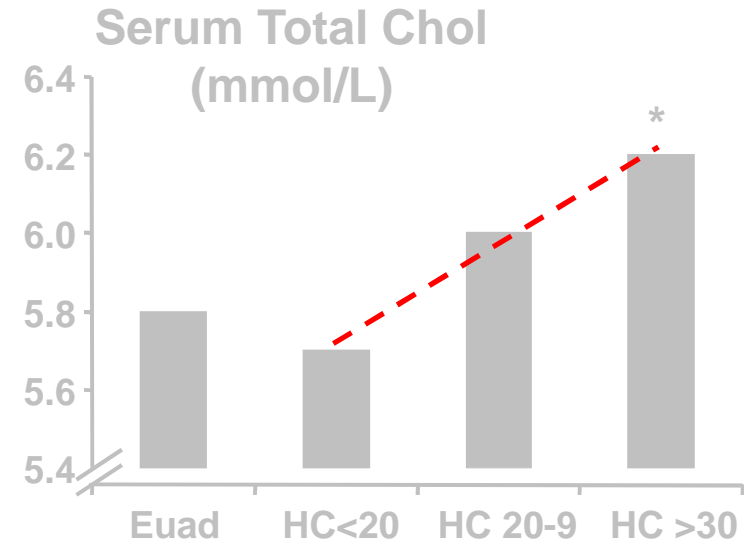
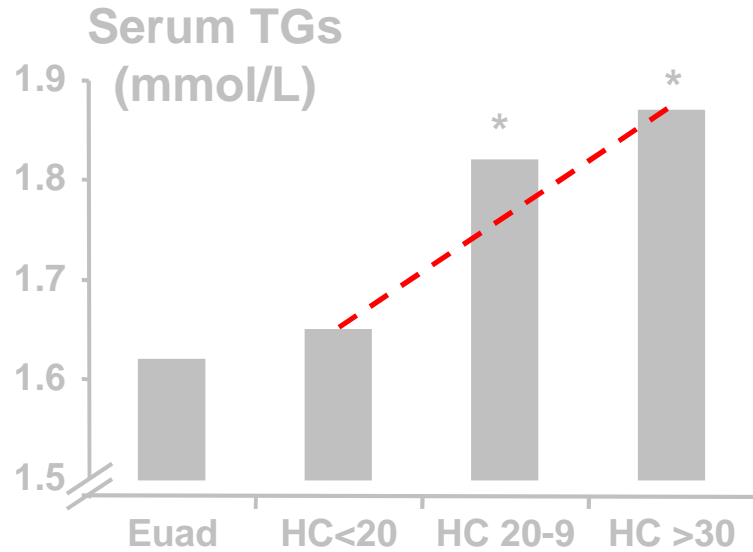
Hypopituitarism: glucocorticoid replacement

Filipsson et al JCEM 2006



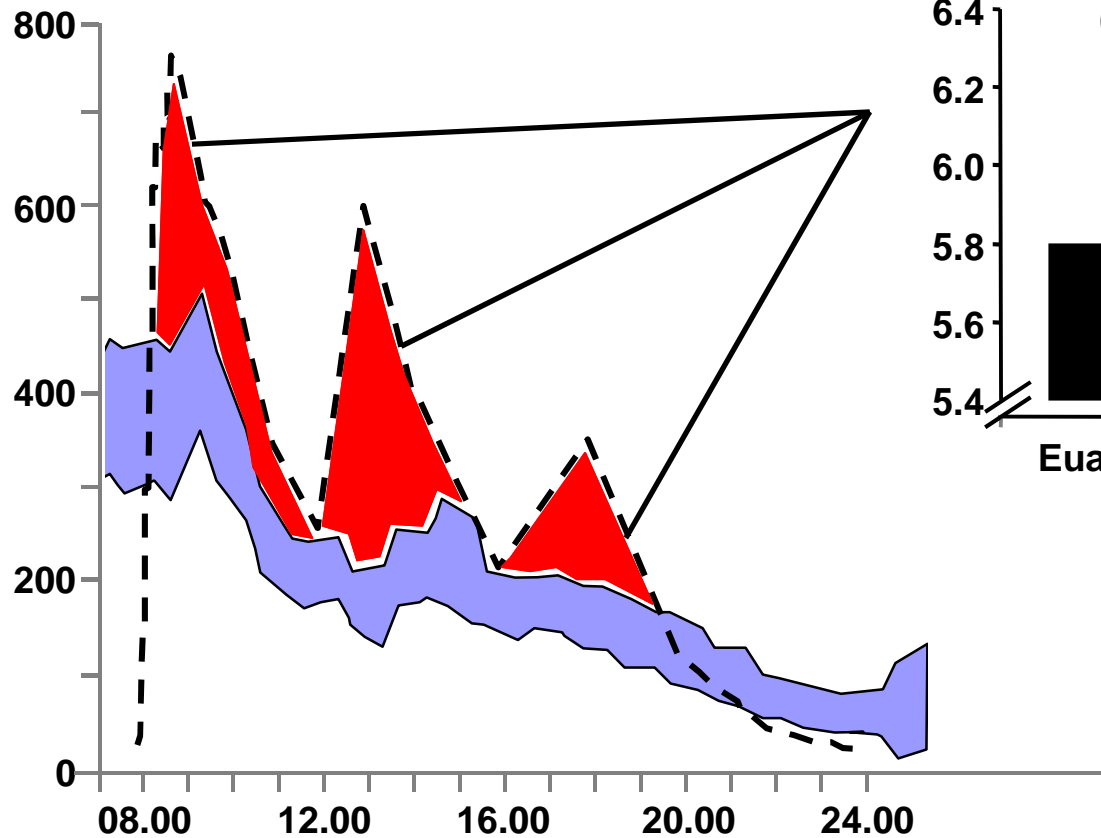
Hypopituitarism: glucocorticoid replacement

Filipsson et al JCEM 2006

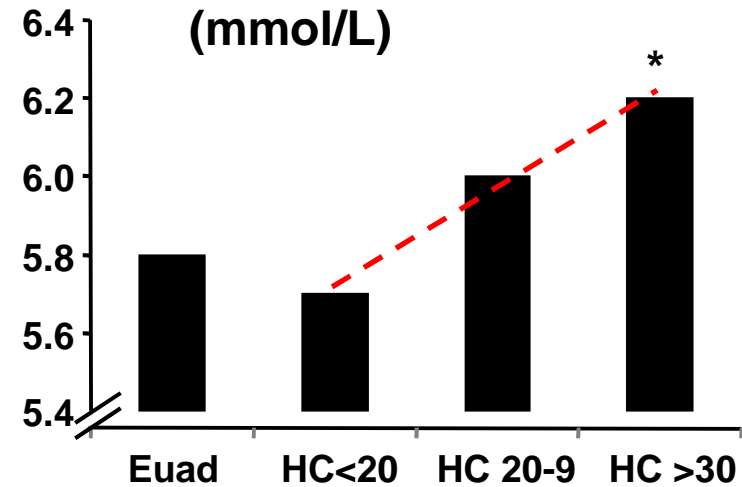


Serum cortisol: normal physiology vs TDS HC

Serum cortisol
(nM)

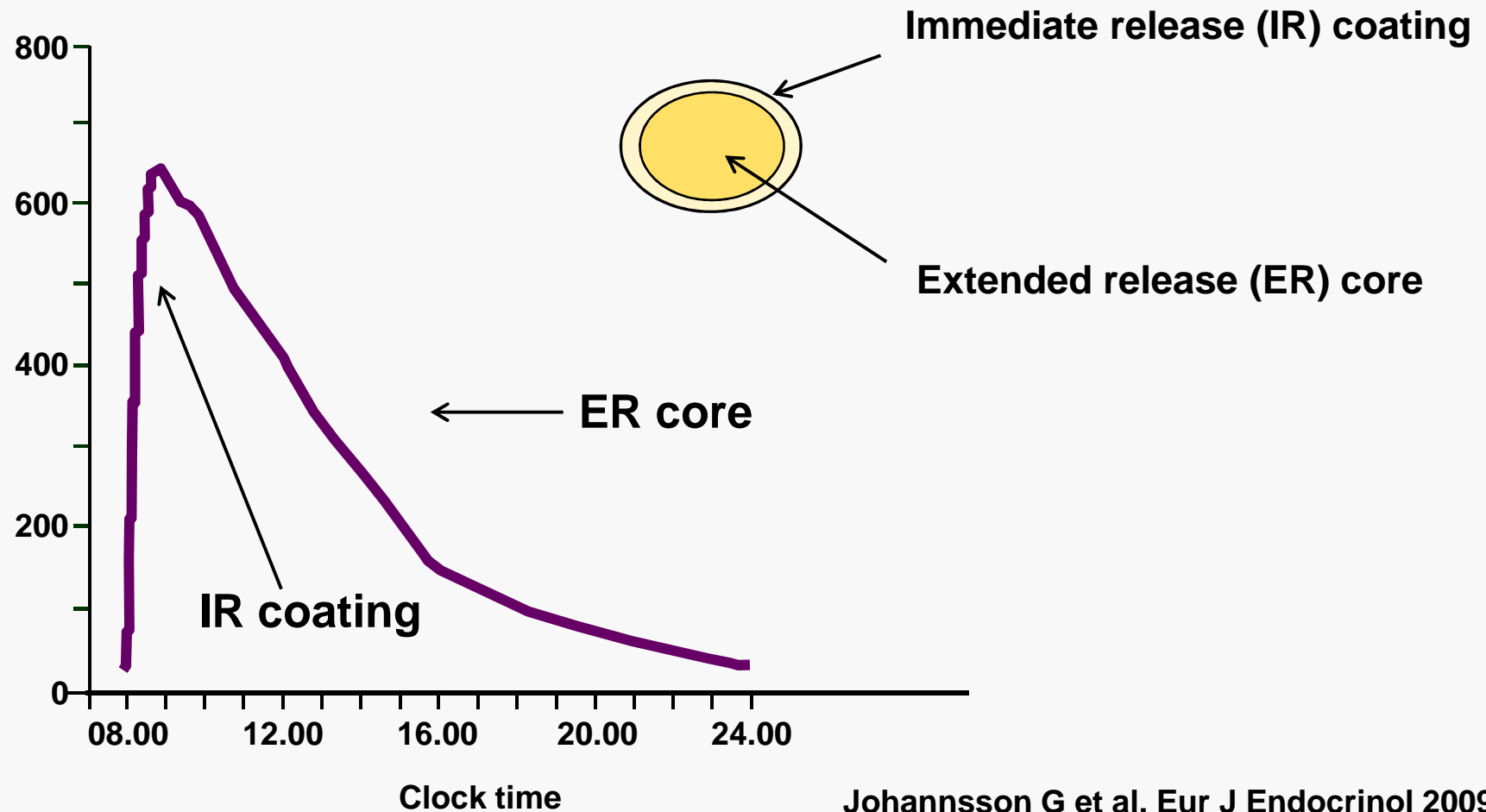


Serum Total Chol
(mmol/L)

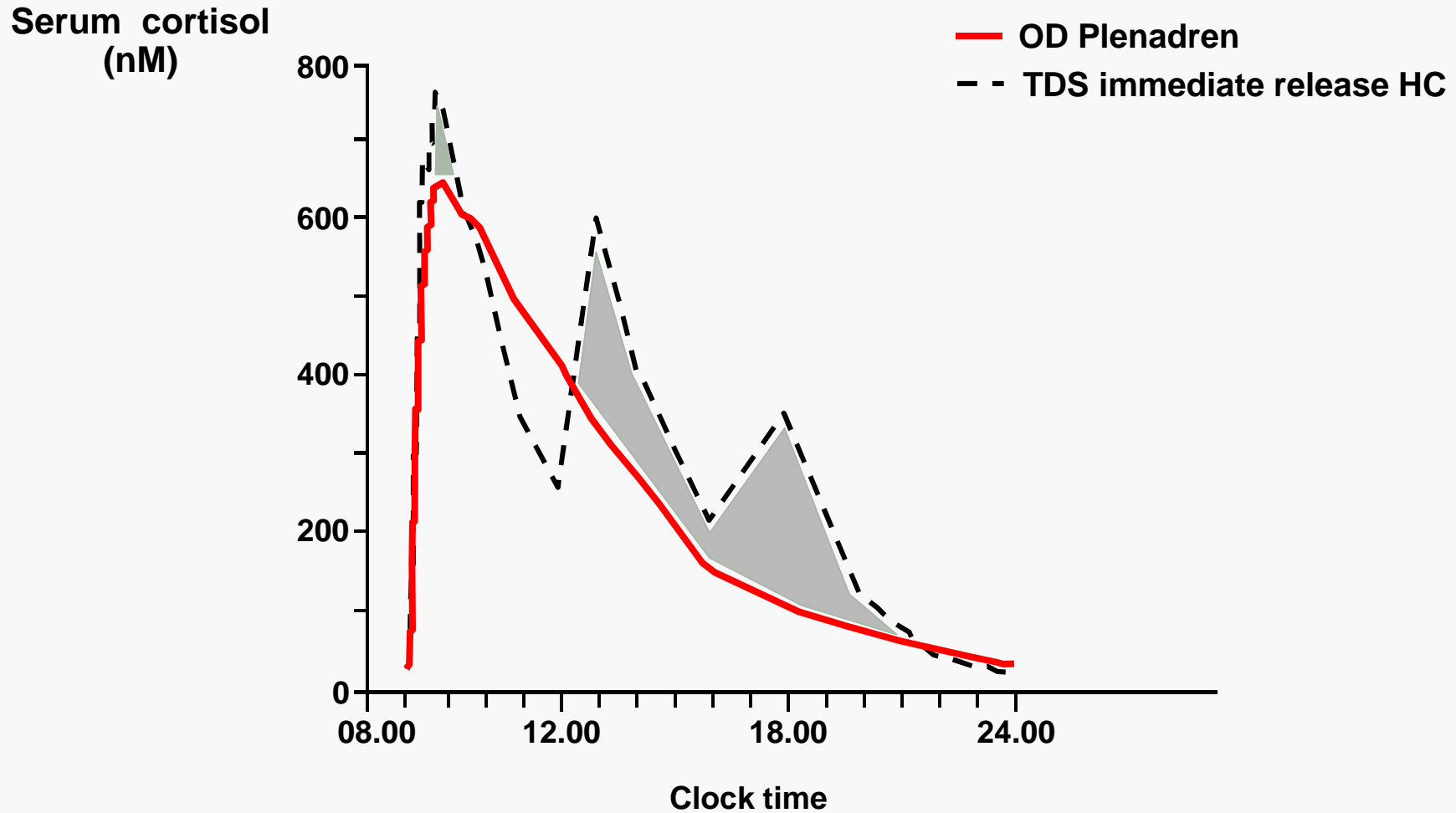


Plenadren: dual release profile

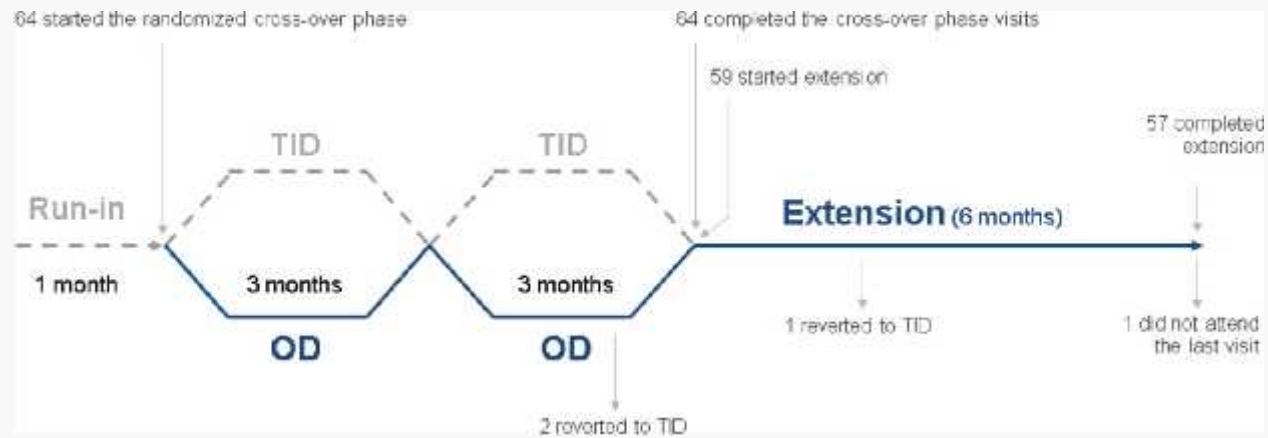
Serum cortisol (nM)



Plenadren vs conventional HC profiles



Plenadren vs conventional HC: design



VS



TDS vs OD HC: CV risk factors at 12w

N = 64 patients

Mean \pm SD

Body weight

-0.7 \pm 1.8 kg

p=0.02

SBP

-5.5 \pm 11.3 mm Hg

p=0.0001

DBP

-2.3 \pm 8.0 mm Hg

p=0.03

HbA1c

-0.1 \pm 0.4 %

p=0.0008

TDS vs OD HC: CV risk factors at 12w

N=11 patients with Diabetes Mellitus

Mean \pm SD

HbA1c

-0.6 \pm 0.6 (%)

p=0.004

Body weight

-0.5 \pm 1.1 kg

p=0.13

SBP

-10.3 \pm 11.6 mm Hg

p=0.03

DBP

-3.5 \pm 6.7 mm Hg

p=0.17



TDS vs OD HC: CV risk factors at 12w

N=11 patients with Diabetes Mellitus

Mean \pm SD

Design flaw

Most of the patients were on 30, 35, or 40 mg daily of Hydrocortisone

DBP

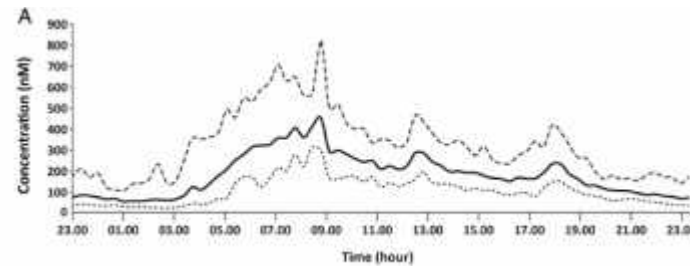
-3.5 ± 6.7 mm Hg

p=0.17

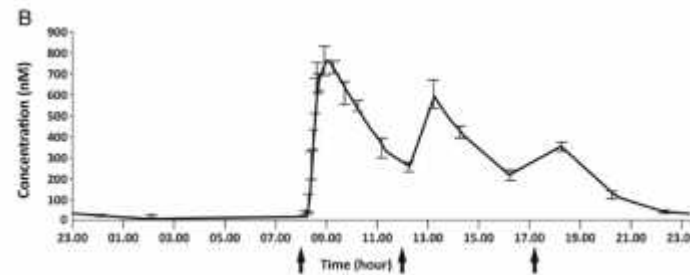


Trying to reproduce normal physiology...

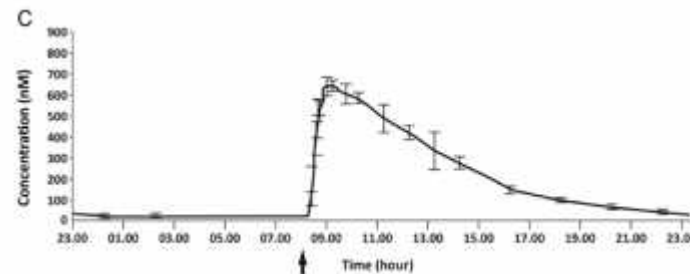
Normal



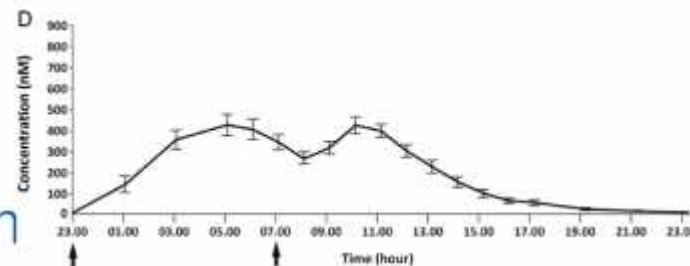
TDS HC



Plenadren



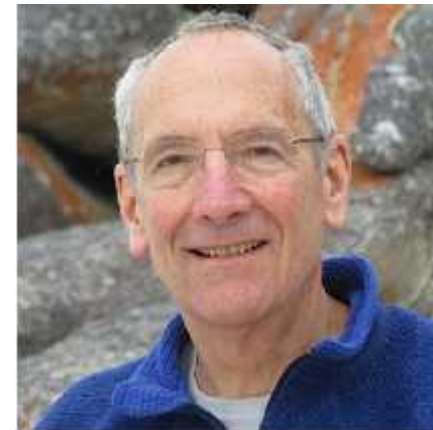
Chronocort



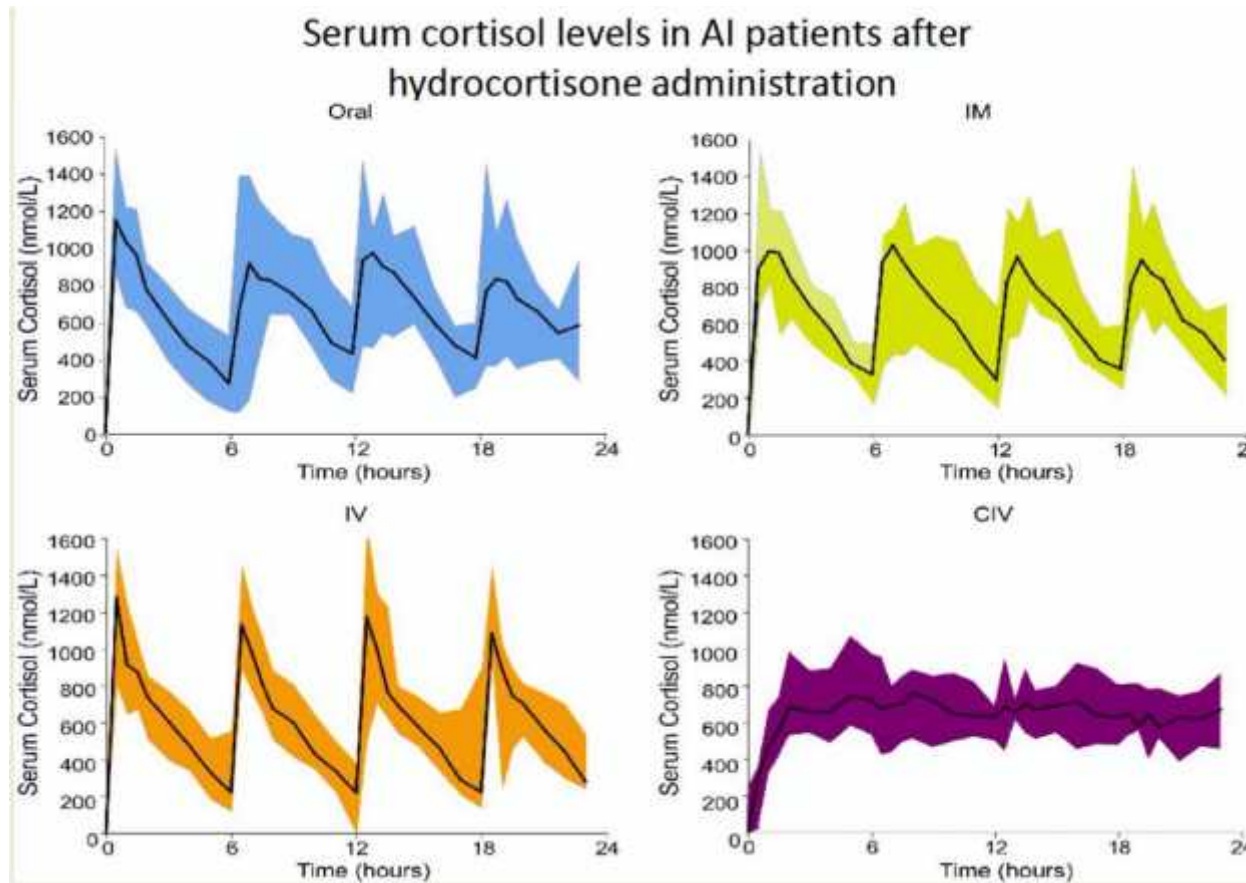
Porter J et al
Arch Dis Child 2017



Adapting diabetes technology



HC regimens for ill patients



Suitable for
AMU/wards

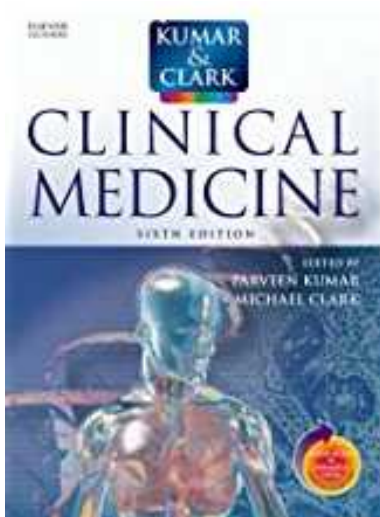
Suitable for
ITU/HDU



Primary aldosteronism: myths

Popular misconception

Accounts for <1% of all hypertension



Published evidence

5-10% of unselected hypertension



Primary aldosteronism: myths

Popular misconception

Accounts for <1% of all hypertension

Nice neat single yellow lesion



Published evidence

Accounts for <1% of all hypertension

May be multiple nodules



Primary aldosteronism: myths

Popular misconception

Accounts for <1% of all hypertension

Nice neat single yellow lesion

Diagnostic trigger is hypok

Published evidence

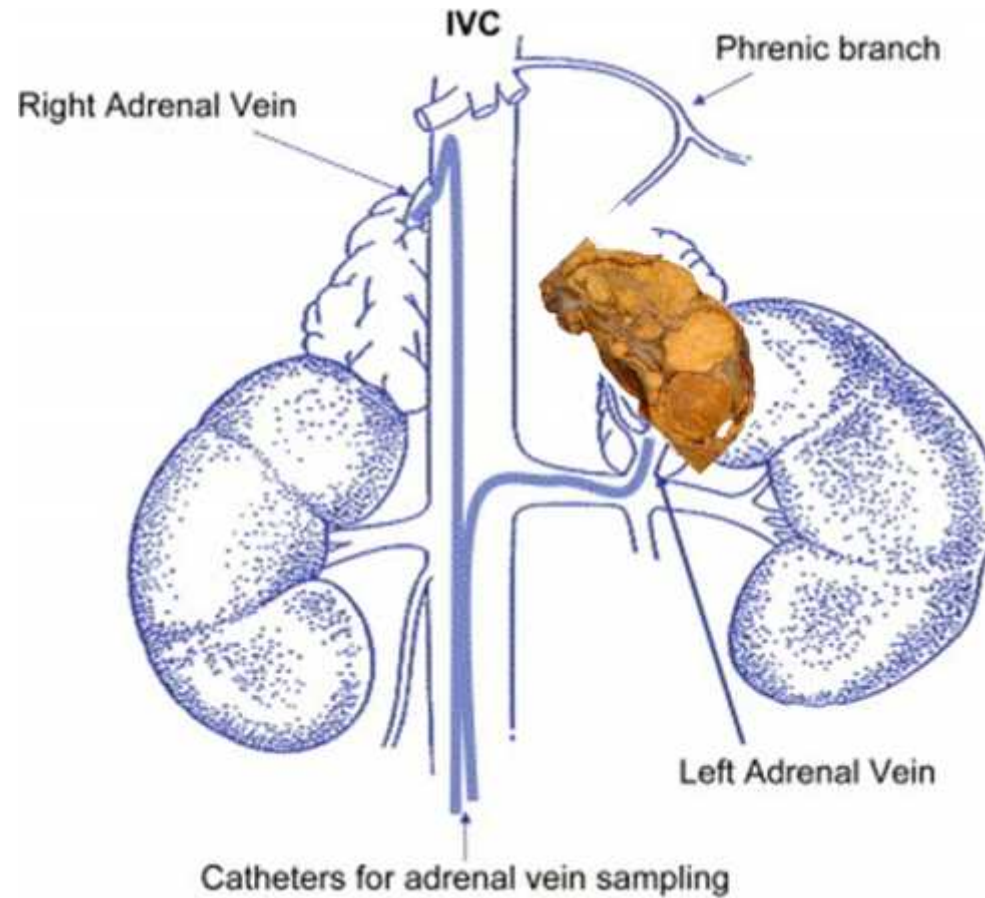
Accounts for <1% of all hypertension

Nice neat single yellow lesion

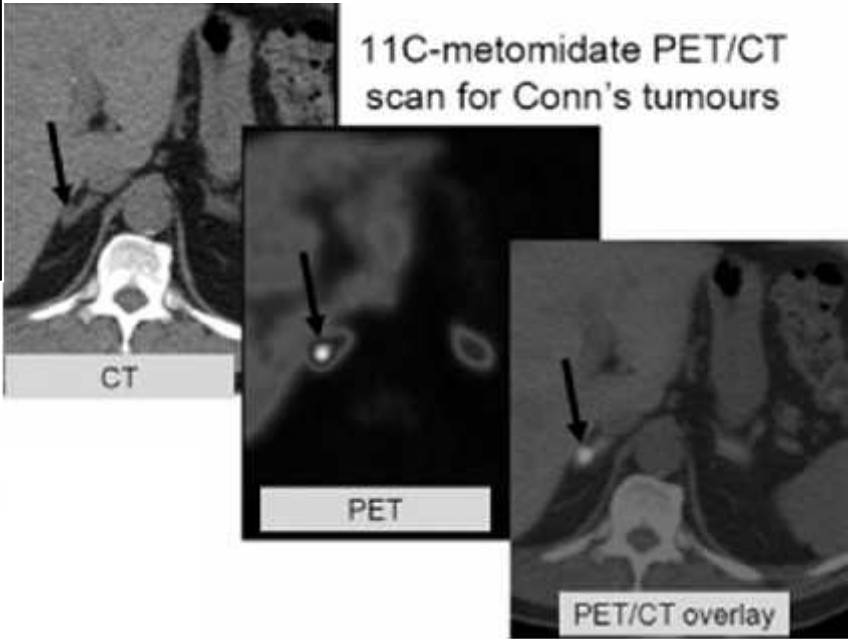
NormoK is common



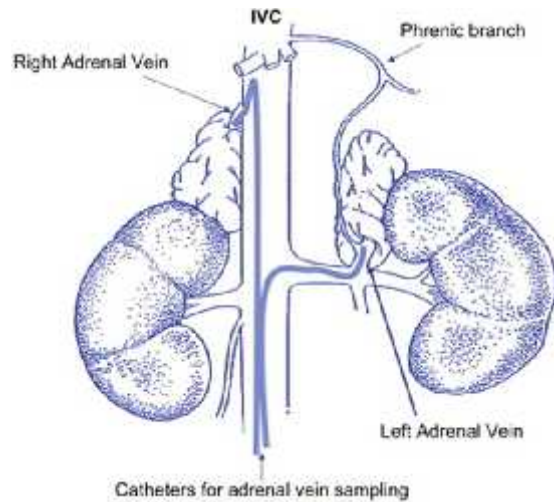
Adrenal vein sampling



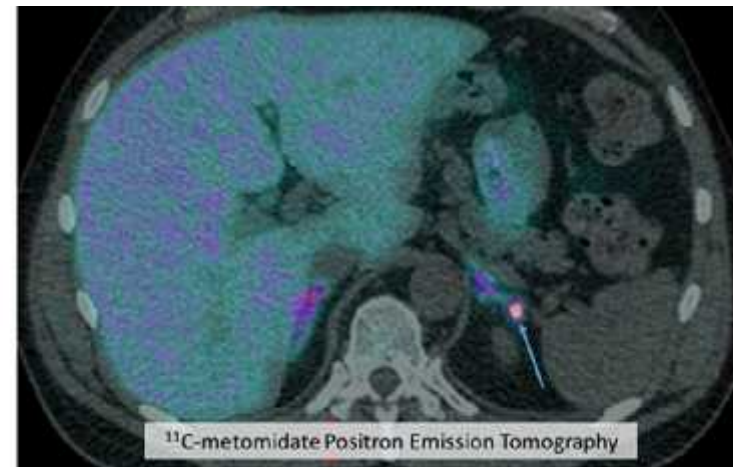
¹¹C Metomidate PET-CT



Head to head study



VS

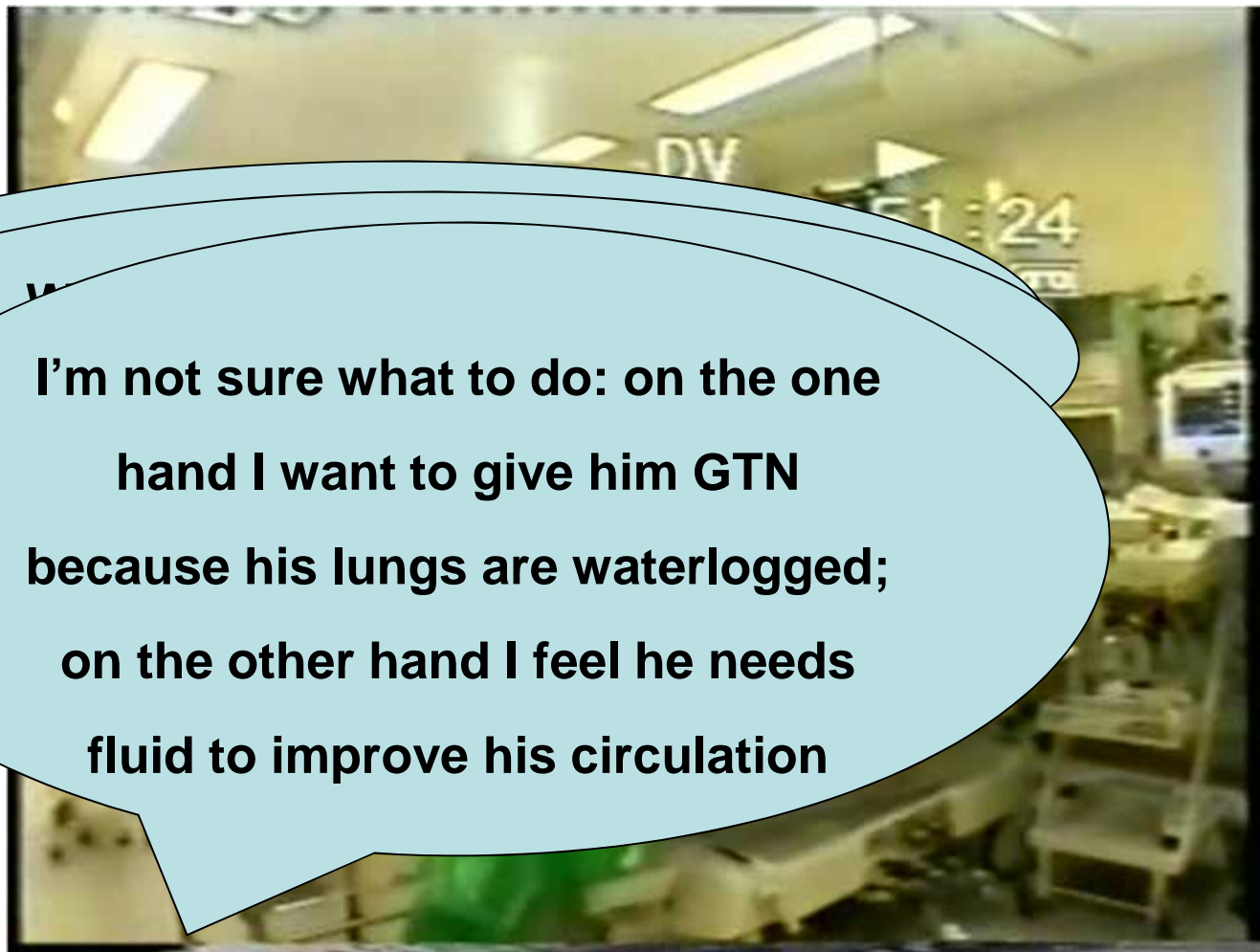


Phaeochromocytoma & catecholamine excess

- ‘Spells’ or ‘paroxysms’ or ‘episodes’

- Emergency unit

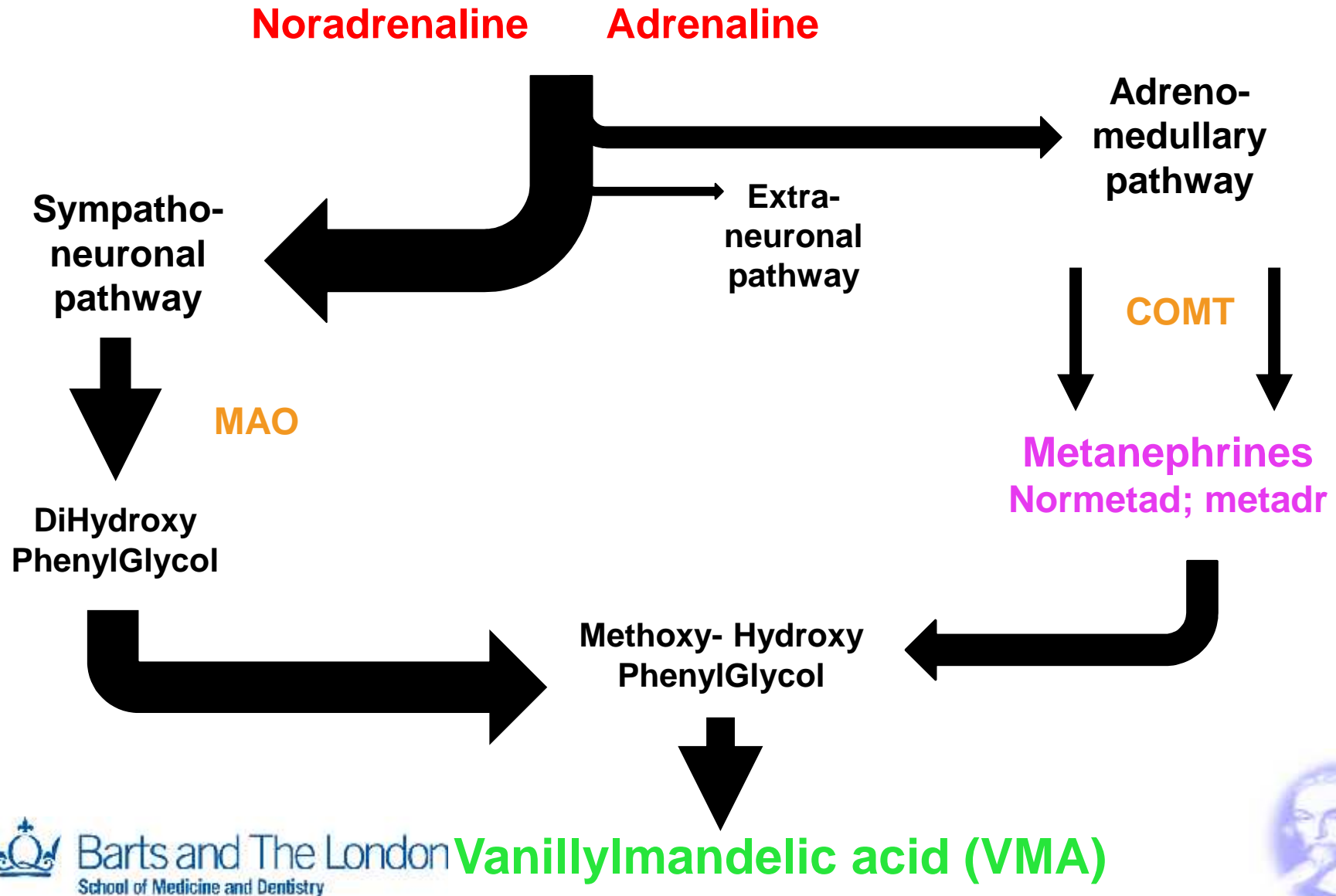




I'm not sure what to do: on the one hand I want to give him GTN because his lungs are waterlogged; on the other hand I feel he needs fluid to improve his circulation

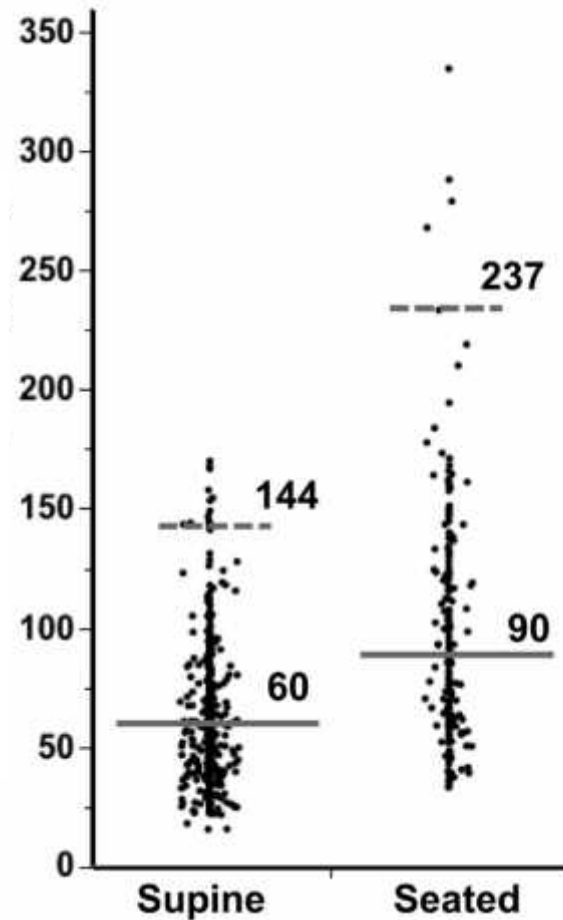


Catechol's, metanephrines and VMA's



Metanephrines: supine vs seated

Plasma
Normetadrenaline
(pg/ml)



'stretch' accounted for by
sympathoadrenal system 'noise'



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