5-beta Reductase

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Metabolism

5-beta reductase (5BR) is an enzyme that converts:

- Cortisol into 5-beta THF (tetrahydrocortisol)
- Cortisone into THE (tetrahydrocortisone)
- Androstenedione into etiocholanolone

Figure 5: 5betaReductase.jpg

Insulin Resistance and Hypertriglyceridemia

Higher excretion of 5beta-reduced cortisol metabolites were independently associated with insulin resistance and hypertriglyceridemia. (Westerbacka, Yki-Jarvinen et al. 2003)

Hypertension

The activity of 5 beta-reductase was significantly lower in essential hypertensives compared with normotensive controls (P < 0.05). (Iki, Miyamori et al. 1994)

One study compared corticosteroid metabolite excretion rates and patterns in a group of 68 subjects with untreated essential hypertension and a matched group of 48 normotensive control subjects. The ratio of tetrahydrocortisol plus allotetrahydrocortisol to tetrahydrocortisone and the ratio of allotetrahydrocortisol to tetrahydrocortisol were significantly higher in the hypertensive group. This is qualitatively similar to the situation found in patients with the syndrome of apparent mineralocorticoid excess or subjects treated with licorice or carbadoxolone where hypertension is known to arise from deficiencies of 11 beta-hydroxysteroid dehydrogenase and 5 beta-reductase activities. The equivalent ratios for corticosterone metabolites were not different between groups, but total corticosterone metabolite excretion was higher in the hypertensive group. Plasma cortisol levels were lower in hypertensive than in control subjects, but corticosterone levels were higher. (Soro, Ingram et al. 1995)
**Fatty Liver**

A study of body fat distribution and cortisol metabolism in healthy men found enhanced 5beta-reductase and lower cortisol/cortisone metabolite ratios in men with fatty liver. (Westerbacka, Yki-Jarvinen et al. 2003)

**Licorice**

References


