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Selective and age dependent changes in PGs in the vas deferens and the epididymis [1] have previously been reported. We have now investigated the relationship between steroids and PGs in these organs. Bilateral castration (at 22d) resulted in a fall in PG E_2 levels in the vas deferens of 35 day old animals (from 1 μg/g of tissue weight in sham operated controls to 0.1 μg/g) while PG $F_2\alpha$ levels were largely unaffected. Testosterone propionate in amounts able to reconstitute sexual organs of castrated animals restored PG E_2 levels to normal. This phenomenon was dose dependent. Monolateral castration or vasa efferentia ligation at 22d did not significantly affect PG E_2 levels at 35d but increased PG $F_2\alpha$ concentrations, compared with those in the contralateral organ (from 0.16 λg/g tissue weight to 0.40 μg/g). The previously observed sharp and transient increase in epididymal PG E_2 levels [1] of 35d animals was reduced after hypophysectomy at 22d (from 0.20 μg/g tissue weight to 0.03 μg/g), while PG $F_2\alpha$ levels were unaffected. Unilateral and bilateral castrations or ligation (all at 22d) increased PG $F_2\alpha$ levels (from 0.03 μg/g tissue weight to 0.10 μg/g). Testosterone propionate treatment of castrated animals reduced PG $F_2\alpha$ levels to control values. Epididymal PG E_2 concentration was unaffected by castration. These observations suggest that the relationship between androgens and PGs could be different in the epididymis and the vas deferens in the immature rat at a period which precedes the passage of spermatozoa in these two organs.

Reference

1. *J. Reprod. Fert.* **50** (1977) 113–115.

MISCELLANEOUS

29. Origin and regulation of CBG in the chick embryo, J. M. GASC and B. MARTIN, Institut d'Embryologie 49 bis, av. Belle Gabrielle, Nogent s/Marne, and Laboratoire de Physiologie de la Reproduction (Groupe Steroïdes) 9, quai Saint Bernard, Paris, France

It is generally assumed that steroid binders in plasma are synthesised in the liver, although a direct demonstration has not yet been presented. In this paper, by the use of organ culture, hepatic synthesis of a transcortin-like molecule in chick embryo is demonstrated. Previous work [1] has shown that CBG can first be detected in the circulating blood of 6-day-old male and female chick embryos and that this binder is like adult CBG in specificity, affinity and electrophoretic pattern. Since no contamination by blood CBG occurred and no C-21 steroid binders were detected in the liver cytosol of 5-day-old embryos, livers of embryos at this stage were cultured in a synthetic medium without serum. After 4 days of culture steroid binders were detected by equilibrium dialysis. Besides non saturable binding, specific binding with C-21 steroids occurred in the liver cytosol (20%) and in the culture medium (80%). Determination of binding constants as well as competition experiments show that corticosterone and progesterone are bound to the culture medium with the same affinity (K_a 4°C: $5 \times 10^8\,M^{-1}$) and specificity as to the plasma CBG. An effect of thyroxine and estradiol-17β upon secretory CBG synthesis was observed. Thyroxine (3×10^{-8} M) and estradiol (10^{-8} M) either alone or together slightly increased CBG synthesis in culture medium.

Reference

1. Martin B., Gasc J. M. and Thibier: *J. steroid Biochem.* **8** (1977) 161–166.

30. Testosterone binding proteins in benign and malignant human prostatic tissue, F. K. HABIB, M. R. G. ROBINSON*, P. H. SMITH† and S. R. STITCH, Division of Steroid Endocrinology, Department of Chemical Pathology, The Medical School, Leeds, LS2 9LN, *Pontefract General Infirmary, Pontefract, WF8 1PL, and †Department of Urology, St. James' Hospital, Leeds, LS9 7TG, England

Although the total testosterone concentration in the plasmas of patients with benign prostatic hyperplasia (BPH) and carcinoma of the prostate was similar, the androgen levels in the malignant tissue were three times those found in the hyperplastic gland. This unexpected finding has led us to investigate the possible presence of a tumour specific testosterone receptor which might account for the accumulation of the androgen in the malignant tissue. We, therefore, examined the androgen binding protein in eight untreated cancer patients and thirteen untreated BPH patients. Aliquots of cytosol were incubated *in vitro* with tritiated testosterone and dihydrotestosterone (DHT) with and without competing steroids. Using the polyacrylamide gel electrophoresis (PAGE) technique, we were able to detect two high affinity saturable binding components in the carcinoma and BPH specimens. The first of the binders had similar electrophoretic mobility ($R_F = 0.34$) and the dissociation constant ($K_D = 10^{-9}$) as SHBG. This protein was present in all the analysed carcinomatous and hyperplastic specimens but unlike the plasma protein does not bind oestradiol-17β. The second migrating peak with a higher mobility ($R_F = 0.45$) was also present in both types of tissue. Its capacity for androgen uptake exceeded that of the SHBG-like protein and, unlike the first component, it exhibited, in the carcinomatous specimen, a high degree of binding for testosterone which was, in turn, not displaced by DHT or any other steroids tested. The capacity of various prostatic cytosol preparations for specific [^{3}H]-testosterone binding was also determined by the Dextran-coated charcoal method. Our data—in conformity with the PAGE results—suggest a progressive increase in specific testosterone-binding activity from benign to malignant prostates. All tumours studied had a high androgen binding capacity and this may account for the accumulation of testosterone in the neoplastic tissue.

31. Corticosteroid receptors in kidneys of chick embryos, J.-G. LEHOUX, C. BEAUDRY and D. BELLABARBA, Département d'Obstétrique-Gynécologie et service d'Endocrinologie, Faculté de Médecine, Université de Sherbrooke, Sherbrooke, Québec, Canada, J1H 5N4

We have studied the ontogeny of corticosteroid receptors in chick embryos of various ages. This model was chosen because of its independence from the maternal endocrine system. Kidney cytosol isolated by differential centrifugation (105,000 *g* supernatant) was incubated with [^{3}H]-corticosterone or [^{3}H]-aldosterone and increasing amounts of the corresponding radioinert hormone. Bound and free ligands were separated by glycerol density gradient and by the charcoal technique. Data obtained were analyzed by the method of Scatchard. Centrifugation of the hormone–receptor complex on a glycerol density gradient showed that [^{3}H]-corticosterone was bound to two fractions with sedimentation coefficients of about 4*S* and 8*S* respectively. A similar pattern was observed with [^{3}H]-aldosterone. By Scatchard analysis only one class of receptor site was demonstrated for corticosterone. The number of binding sites for corticosterone increased progressively from the 12th day of embryogenesis to reach a maximum at the 16th day (from 164 to 843 fmol/mg protein) and decreased thereafter to the initial level. The