Journal of Steroid Biochemistry, 1976, Vol. 7, pp. 151–152. Pergamon Press. Printed in Great Britain

SHORT COMMUNICATION

PITUITARY TESTICULAR RELATIONSHIP IN THE ADULT MALE RABBIT AFTER EXPERIMENTAL CRYPTORCHIDISM

E. V. YOUNGLAI, P. DIMOND and L. W. BELBECK

Departments of Obstetrics and Gynecology and Pathology, Programme in Reproductive Biology, McMaster University, Health Sciences Centre, Hamilton, Ontario, Canada, L8S 4J9

(*Received* 13 *June* 1975)

SUMMARY

The secretion of testosterone and LH in adult cryptorchid male rabbits was found to be similar to normal adults. Testicular testosterone content was also similar although testicular weights were less in cryptorchids ($P < 0.005$) and contained less total testosterone ($P < 0.025$).

It was recently reported [1] that androgen concentrations were increased in unilateral cryptorchid stallion testes. We had previously found a normal cryptorchid male New Zealand White rabbit with hormone levels (LH-90 ng/ml and testosterone 35 ng/ml) which were elevated (unpublished). It was therefore of interest to determine whether such high hormone levels could be produced in experimental cryptorchid rabbits. This communication describes data which suggest that cryptorchidism does not significantly alter pituitary-testicular function.

Four adult male New Zealand White rabbits were made cryptorchid under sodium pentobarbital anaesthesia. A small incision was made through the scrotal sac and the gubernaculum transected distally. The testes were pushed through the inguinal ring and then the scrotum was ligated. Two to five weeks after the animals were made cryptorchid an indwelling catheter was placed in the central ear artery and blood samples taken at 20 min intervals for up to $5\frac{1}{2}$ h. Plasma was analysed for LH and testosterone. Methods for blood sampling and hormone determinations have been described [2]. At the end of the sampling period laparotomy was performed and the testes found to be lying freely in the peritoneal cavity. They were removed, a piece taken for histology and the remainder frozen for testosterone determinations.

Testes were homogenized in saline and 10% (v/v) 1N NaOH added before extracting with ether. Separate aliquots of each ether extract were analysed for testosterone. Table 1 gives the testosterone values on the cryptorchid testes compared to testes from normal rabbits. Concentrations are similar to those previously found [3]. While testosterone concentrations in testes were not significantly different total testicular testosterone was higher in normal rabbits ($P < 0.025$). Normal testes also weighed more ($P < 0.005$). Histological sections showed that the cryptorchid testes were devoid of spermatogenic tissue.

In Fig. 1 are the secretory patterns of plasma LH and testosterone obtained with cryptorchid rabbits. Two rabbits were sampled on consecutive days, NC and NF, and NL and NM. Values of both hormones and their patterns of secretion were the same as found previously in normal adult male rabbits [2,4].

These data are in contrast to those of Ganjam *et al.* [1]. If steroids are released as soon as they are produced [5] one would expect elevated peripheral levels in the cryptorchid stallions. Our findings are similar to previous data in the rat where testosterone levels [6,7] or LH [8] are not markedly elevated after cryptorchidism. However, other workers have detected increases in LH after cryptorchidism in rats [9,10].

Table 1. Testosterone content of testes

Normal	wt. (g)	Testosterone Total (ng)	Testosterone ng/g
F	6·12	227	37·0
M	3·77	291	77·2
N	5·90	356	60·4
Mean ± SEM	5·26 ± 0·74	291·3 ± 30·4	58·2 ± 9·5
Cryptorchid			
H	1·65	55·6	33·7
I	1·87	209	111·9
K	2·00	126	62·8
L	1·40	49·5	35·4
Mean ± SEM	1·74 ± 0·13*	110 ± 32·5**	60·9 ± 15·8
	* $P < 0.005$	** $P < 0.025$	N.S.

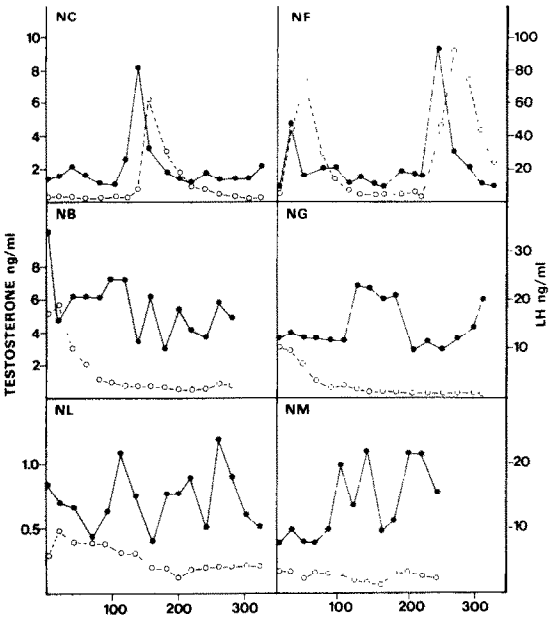

Fig. 1. Secretory patterns of LH and testosterone plotted against time (min) in cryptorchid rabbits. ●——● LH ○——○ testosterone. The LH standard was WP 360A (courtesy A. F. Parlow).

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