The effect of vasectomy on pituitary-gonadal function in men

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Studies on the effects of vasectomy on hormone levels and accessory reproductive organ function in man have shown that there are no significant alterations in the levels of serum LH and FSH (Wieland, Hallberg, Zorn, Klein & Luria, 1972; Johnsonbaugh, O'Connell, Engel, Edson & Sode, 1975; Varma, Varma, Johanson, Kowarski & Migeon, 1975) or testosterone (Bunge, 1972; Wieland *et al.*, 1972; Johnsonbaugh *et al.*, 1975; Varma *et al.*, 1975), although Smith, Tcholakian, Chowdary & Steinberger (1976) reported a significant increase in plasma testosterone and LH levels 1 year after vasectomy. Kobrinsky, Winter, Reyes & Faiman (1976) found an acute fall in FSH and testosterone concentrations: subsequently, FSH remained below while LH and testosterone returned to the prevasectomy level (Kobrinsky *et al.*, 1976).

Altered prostatic (Thakur, Sheth, Rao & Thaker, 1975) and epididymal function (Pardanani, Patil & Powar, 1976) has been observed following vasectomy. However, Nun, Musacchio & Epstein (1972) and Thakur *et al.* (1975), in a cross-sectional study, found no increase in the seminal fructose of vasectomized men.

These conflicting data may be due to variations in the time after vasectomy of the different studies, and/or whether the studies were cross-sectional or longitudinal.

In the longitudinal study reported here, we have investigated the hormonal status and accessory sex organ function in 19 healthy men, aged 35–45 years, who underwent voluntary vasectomy. The investigations were carried out on the day of vasectomy and were repeated at the end of 3 months and 1 year. Serum LH and FSH levels were measured by the double antibody radioimmunoassay

Table 1. Effect of vasectomy on serum levels of testosterone, LH and FSH and on seminal citric acid, fructose, maltase, and acid phosphatase in men

	After 3 months			After 12 months		
	Difference*	<i>t</i> †	<i>P</i>	Difference*	<i>t</i> †	<i>P</i>
LH (mi.u./ml)	+2.03 (19)	1.72	N.S.	+0.69 (10)	0.34	N.S.
FSH (mi.u./ml)	−0.73 (19)	0.91	N.S.	+3.03 (10)	2.18	N.S.
Testosterone (ng/ml)	+0.634 (13)	0.75	N.S.	+1.82 (8)	1.08	N.S.
Fructose (mg/ml semen)	+2.84 (9)	17.17	0.001	+3.36 (5)	5.42	0.01
Maltase (mg glucose/ml semen)	−2.33 (9)	2.81	0.05	+0.24 (5)	0.14	N.S.
Citric acid (mg/ml semen)	−1.45 (8)	2.56	0.05	+0.6 (4)	1.13	N.S.
Acid phosphatase (μmol/ml semen)	−5.91 (8)	1.10	N.S.	+3.1 (4)	0.78	N.S.

* From level before vasectomy: no. of comparisons indicated in parenthesis.

† Paired *t* test analysis.

of Midgley (1966), and testosterone by the radioimmunoassay of Castro, Shin & Chung (1975), seminal maltase activity was estimated according to the method of Rao, Sheth & Gunaga (1969), fructose by the method of Sheth & Rao (1959), citric acid by the method of Beutler & Yeh (1969) and acid phosphatase activity by the method of Bergmeyer (1965). The semen samples were kept on ice after collection and were transferred within 30 min to the laboratory where they were immediately centrifuged at 1000 *g* for 15 min at 4°C to remove the spermatozoa. The supernatants were preserved at -20°C until analyses.

The results are shown in Table 1. No changes in serum testosterone, LH and FSH levels before and after vasectomy were observed. Fructose concentration increased significantly. Maltase activity and citric acid levels had decreased by 3 months after vasectomy but had returned to preoperative levels after 1 year. Seminal acid phosphatase activity showed a similar trend, though the differences were not significant.

Our findings show that vasectomy does not have any effect on circulating levels of testosterone, LH or FSH, although accessory gland function may be affected to some degree.

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