Etonogestrel implants with depot testosterone: dose-dependent suppression of spermatogenesis for long-acting male contraception

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The co-administration of a progestogen with testosterone increases the degree of suppression of spermatogenesis, and thus is a promising approach to the development of hormonal male contraception. Depot formulations allow a reduction in dosage, minimising side-effects. We have investigated the effects of a subcutaneous implant containing the progestogen etonogestrel (Implanon®) with depot testosterone on spermatogenesis in normal men. 28 normal men were randomised to receive either 1 or 2 etonogestrel implants for 24 weeks. All men additionally received 400mg testosterone pellets on day 1 and at 12 weeks. Four men withdrew, 3 because of perceived side-effects. Testosterone concentrations remained within the physiological range during treatment. Both groups showed marked suppression of spermatogenesis, 9 men in each group achieving azoospermia. Sperm concentrations in 13/14 men in the 2 implant group fell to 0.1×10^6/ml. Spermatogenic suppression was more variable in the 1 implant group, with partial recovery seen in 3 men. Incomplete suppression of spermatogenesis in the 1 implant group was associated with less complete suppression of LH ($p=0.02$) in those men compared to those who were azoospermic at the end of treatment. There were no significant changes in weight, haemoglobin, haematocrit, or HDL-C concentration during treatment. Subcutaneous etonogestrel implants with a depot testosterone preparation are therefore a promising approach to the development of long-acting yet reversible male contraception, although a maximal effect may require higher concentrations of etonogestrel than achieved by two implants.