influenza, sendai, psittacosis, adeno- and respiratory syncytial viruses. HLA typing showed the presence of B27 antigen.

His symptoms responded to oral corticosteroids and three months later he was well, with a normal ECG and negative latex test. In the last three years his ESR has never been higher than 26 but his latex test titres have been 1:640 (March 1975); 1:320 (July 1975), and negative (November 1975). Throughout this period he has remained well and his cardiac signs are unchanged.

Discussion

In our patient aortic incompetence presented eight years after the first episode of Reiter's disease and was associated with a positive slide latex test to a titre of 1:2560. That he was not one of the 2% of normal individuals with a positive slide latex test is shown by the two previous and two subsequent negative results. We have found 18 case reports in which aortic incompetence has occurred secondary to Reiter's disease. In only one of these has the disease been associated with a positive latex test for rheumatoid factor and this was only weakly positive.⁴ We have found only two other cases of Reiter's disease associated with the presence of rheumatoid factor, though in one of these the presence of rheumatoid nodules suggests the coincidence of rheumatoid arthritis with Reiter's disease.⁵

We have ruled out all the generally listed causes of a positive slide latex test. There was no clinical or biochemical evidence of chronic liver or respiratory disease, and the repeated negative blood cultures, normal FDP, and subsequent benign clinical course without any antibiotic treatment rule out subacute bacterial endocarditis. In addition the level of the positive titres (1:1280 rising to 1:2560) is much higher than is usually seen in non-rheumatic conditions.

The significance of the raised latex titre remains unexplained. Perhaps it is a marker, suggesting an autoimmune aetiology of aortic regurgitation in Reiter's disease. Perhaps serial measurements of latex titres in patients with aortic incompetence and Reiter's disease would have shown similar results in the other published accounts.

¹ Csonka, G W, *et al*, *British Medical Journal*, 1961, **1**, 243.

² Good, A E, *Seminars in Arthritis and Rheumatism*, 1974, **3**, 253.

³ Paulus, H E, Pearson, C M, and Pitts, W, *American Journal of Medicine*, 1972, **53**, 464.

⁴ Block, S R, *Arthritis and Rheumatism*, 1972, **15**, 218.

⁵ Csonka, G W, *British Journal of Venereal Disease*, 1959, **35**, 84.

(Accepted 29 June 1977)

Enfield District Hospital, Enfield, Middx

R M DU BOIS, MB, MRCP, senior house officer
S FREEDMAN, PHD, MRCP, consultant physician

Suppression of serum testosterone concentrations in men by an oral contraceptive preparation

Synthetic oestrogens have been used to treat prostatic cancers for over 50 years. High doses have been necessary for adequate response, and long-term use has produced cardiovascular side effects as well as unpleasant feminising effects.¹ The effect of a combined administration of synthetic oestrogens and progestogens has been little studied so far. We have examined the effects of a combined injection of norgestrel and ethinyloestradiol on serum testosterone levels in normal men.

Methods and results

Five healthy men, aged 27-39, volunteered. They took one Eugynon 50 tablet (50 µg ethinyloestradiol + 500 µg norgestrel) between 0700 and 1100 each day for nine days. Venous blood samples were obtained three times a day (between 0900 and 1100, 1500 and 1700, and 2000 and 2300) at about six-hourly intervals on the day before starting the drug, the second, fourth, sixth, and ninth days on the drug, and on the third and seventh days after stopping the drug. Serum testosterone was assayed by a specific radioimmunoassay.²

The figure shows the effect of the drug ingestion on serum testosterone levels. Concentrations (mean of the three samples) fell rapidly for the first

Response of serum levels (mean of three sampling times) of testosterone in five men ingesting norgestrel 500 µg + ethinyloestradiol 50 µg/day for nine days. Vertical bars show standard error of mean.

four days and continued to fall at a slower rate during the 9 days of ingestion. On the ninth day concentrations had fallen to 8% of the initial levels (1.25 nmol/l (0.36 ng/ml)). After discontinuation of the drug concentrations rose quickly and had recovered fully within a week. All men experienced loss of libido during the latter half of the ingestion period.

The results show a powerful effect of the contraceptive preparation in depressing serum testosterone levels in men. Ethinyloestradiol ingestion alone does not produce this pronounced effect,³ which is therefore caused by the progestogen norgestrel. Our preliminary studies with norgestrel ingestion alone do in fact confirm that the effect is almost entirely due to the progestogen. This short-term study therefore indicates that norgestrel is a promising agent for trial in treating prostatic cancer.

Norgestrel has been classified by Edgren *et al*⁴ as a progestogen with androgenic effects and was given an androgenicity rating of 7.5% when compared with testosterone propionate by its effect on the ventral prostate in castrated rats. Later, however, Edgren *et al* administered up to 20 µg of norgestrel to castrated male rats weighing 50 g and found no increase in the weight of the ventral prostate or the seminal vesicles.⁵ A combination of norgestrel with ethinyloestradiol also had no trophic effect on the rat prostate. Whether these results are applicable to people or not, it seems unlikely that our small doses would have any trophic effects on the prostate.

When the present results are compared with the testosterone depressing effects reported for other synthetic steroids, progestogens, or oestrogens, it is clear that on a weight basis norgestrel has by far the strongest effect.

Comment

We suggest that norgestrel alone or combined with small doses of ethinyloestradiol warrants a trial in treating prostatic cancer. As a constituent of oral contraceptive preparations the drug has proved without major side effects in women, and the small doses needed keep the cost within reason.

We gratefully acknowledge support from the Cancer Research Campaign and the Kishinchand Chellaram Foundation.

¹ Byar, D P, *Cancer*, 1973, **32**, 1126.

² Kjeld, J M, *et al*, *British Medical Journal*, 1976, **2**, 1354.

³ Smals, A G H, *et al*, *Acta Endocrinologica*, 1974, **77**, 765.

⁴ Edgren, R A, *et al*, *Fertility and Sterility*, 1967, **18**, 238.

⁵ Edgren, R A, *et al*, *Journal of Reproduction and Fertility*, 1968, suppl 5, 13.

(Accepted 15 July, 1977)

Endocrine Unit, Department of Medicine, Royal Postgraduate Medical School, Hammersmith Hospital, London W12 0HS

J M KJELD, MD, PHD, research fellow

C M PUAH, BSC, technical officer

B KAUFMAN, MRCP, consultant physician

S LOIZOU, BSC, technical officer

J VLOTIDES, MD, research fellow

G F JOPLIN, PHD, FRCP, consultant physician and senior lecturer in clinical endocrinology