Comment

The prevalence of polycystic ovaries in the women who had had recurrent miscarriages was high (82%). Although the number of parous control women was small, their prevalence of polycystic ovaries (18%) was similar to that observed in a much larger population of normal women (22%).³ The normal serum luteinising hormone and urine pregnanediol-3 α -glucuronide concentrations suggest that the endocrine abnormalities typical of women with polycystic ovaries who do not ovulate did not occur in the women we studied who ovulated spontaneously. This, however, is consistent with our previous findings that luteinising hormone concentrations are usually normal in women with polycystic ovaries who ovulate but are hirsute, and that three quarters of the women in the normal population who are diagnosed as having polycystic ovaries have normal serum luteinising hormone concentrations.^{2,3}

A raised serum luteinising hormone concentration may be a risk factor for early miscarriage.⁴ Women with polycystic ovaries who conceive after induction of ovulation with pulsatile luteinising hormone releasing hormone have an increased rate of early loss of pregnancy compared with hypogonadotrophic patients. Serum luteinising hormone concentrations were higher, particularly during the follicular phase, in women with polycystic ovaries who had an early pregnancy loss compared with those whose preg-

nancies progressed to term.⁴ Serial blood sampling and ultrasonography are required to establish whether patients who have recurrent miscarriages have inappropriately high luteinising hormone concentrations at some particular point in their menstrual cycle.

Another possibility is that the increased risk of early miscarriage in women with polycystic ovaries results from an abnormal endometrial environment in early pregnancy.⁵ Endometrial changes may in turn be linked to the abnormal production of immunoglobulins by decidual cells thought to occur in women who have recurrent miscarriages.

MS was funded by a research fellowship from the Royal College of Obstetricians and Gynaecologists provided by Marks and Spencer plc; additional funding was received from the medical school's Save the Baby Fund.

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(Accepted 22 July 1988)

Response of human skeletal muscle to the anabolic steroid stanozolol

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As part of a larger trial assessing the value of stanozolol in preventing postoperative deep vein thrombosis¹ we studied whether stanozolol increased the size of human skeletal muscle fibres.

Patients, methods, and results

We studied 16 patients undergoing elective abdominal surgery, eight of whom received 10 mg stanozolol orally each day for 14-21 days before operation as part of the larger trial.¹ Patients were matched in pairs for age, sex, and body build (percentage overweight for height was calculated from tables giving expected weight for height). None of the patients had a history of abdominal operations, recent weight loss, endocrine disorder, or treatment with corticosteroids, and none had a malignant condition. Consent was obtained from the patients and the trial was approved by the hospital ethical committee.

A biopsy specimen of rectus abdominis at least 1 cm long was taken at operation (avoiding tendinous insertions) before diathermy or retractors were used. These were processed according to a routine protocol, and serial cryostat sections were stained with haematoxylin and eosin, reduced nicotinamide-adenine dinucleotide diaphorase, Gomori's trichrome, and adenosine triphosphatase preincubated at pH 9.4, 4.63, and 4.35.² An image based analysis system (IBAS 1, Konitron Bildanalyse System) was used to measure the smallest diameter of the myofibres (the greatest distance across the lesser aspect of the fibres in the

section stained with adenosine triphosphatase and preincubated at pH 9.4).² At least 200 type I fibres and 200 type II fibres were measured in each sample except one, in which only 151 type I fibres were present. All of the fibres within fascicles chosen at random were measured. The variability in measurements between operators was found to be less than 3%. A paired Wilcoxon rank test was performed on the mean diameters of the fibres in the two groups.

The diameters of type I fibres were significantly larger ($0.02 < p < 0.005$) in the patients treated with stanozolol compared with the controls (table). There was no significant difference ($p > 0.05$) between the type II (a and b) fibres in the treated and control groups. Type IIc fibres were present in varying and small numbers in the samples (0.4% of the total), but no statistical analysis was performed on these.

Comment

These results show an increase in the bulk of type I (oxidative) fibres in response to the anabolic steroid stanozolol. Changes in the size of muscle fibres are most common in type II fibres, which atrophy with disuse, malnutrition, and excess glucocorticoids and show hypertrophy after "strength building" exercise. Arduous long term physical exercise leads to an increase in the bulk of type I fibres, both by hypertrophy of fibres and by transformation of fibre type³; and the oxidative capacity of the muscle increases concurrently.⁴ The bulk of fibres may also increase in certain diseases such as Duchenne muscular dystrophy, in which the composition of the hypertrophied muscle is abnormal.

The muscle we examined is not usually used in exercise. If, however, an increased bulk of type I fibres in other skeletal muscle increased its aerobic potential it might fatigue less readily. Any resulting increase in exercise might lead to secondary hypertrophy of type II fibres, improving performance and, incidentally, masking a predominant direct effect on type I fibres in

Mean diameters of type I fibres
(μ m) in pairs of patients and
controls matched for age, sex,
and body build

Patient no	Patients treated with stanozolol	Controls
1	44	33
2	46	47
3	56	44
4	40	39
5	62*	57
6	51	43
7	57	43
8	41	40

*Only 151 fibres were available for measurement in this sample.

scientific trials. Though this may explain the mechanism of action of anabolic steroids in athletes, these results and the assumptions within this hypothesis require further investigation.

We thank Dr J A Davies, Professor C C Bird, Professor D Johnston, Mr N Williams, and Mr J Primrose for their encouragement and for help in obtaining biopsy specimens; Peter Walsh and Elizabeth Wakefield for technical help; and Sterling Research for financial help.

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(Accepted 27 June 1988)

Allergy to latex gloves: unusual complication during delivery

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Several drugs cause anaphylactic reactions during anaesthesia, including barbiturate induction agents and muscle relaxants such as suxamethonium.¹ Anaphylactic reactions to drugs such as propanidid and oxytocin during caesarean section have been reported.^{1,2} We describe four women who developed systemic allergic reactions during delivery; the allergen was latex that eluted from surgical gloves worn by the obstetrician.

Case reports

All four patients had previously experienced local wheal and flare reactions when using latex gloves. The first patient, a nurse, had an anaphylactic reaction during her first delivery, which was performed by caesarean section, and anaesthetic drugs were suspected to be the cause. Her second delivery was vaginal, and she developed generalised cutaneous symptoms immediately after ventouse delivery. The patient was convinced that the surgeon's gloves had caused her symptoms. This was confirmed by a prick test and radioallergosorbent test for latex.³ Thereafter she had two uneventful deliveries, in which oxytocin and ergometrine maleate were used and the staff wore only polyvinyl chloride gloves.

Allergy to latex was diagnosed in our second patient, a surgeon, before her first delivery. Despite this an allergic reaction after stitching of the episiotomy wound was a surprise both to her and to the obstetrician. During her next two deliveries latex gloves were not used, but during her third delivery she developed contact urticaria after having a rubber cuff on her arm.

In the other patients, a dentist and a secretary, the symptoms developed immediately after stitching of the episiotomy wound but an allergic reaction was not diagnosed. In the dentist an intradermal test for allergy to lignocaine was performed but the result was negative.¹

All patients were treated with intravenous hydrocortisone or methylprednisolone, and the first patient received adrenaline as well because of severe hypotonia and bronchospasm under general anaesthesia. They all recovered quickly, but their urticaria lasted for up to 18 hours.

All of the women had a history of atopic dermatitis and gave at least one positive reaction to common

inhaled allergens on routine prick testing. Three of them had allergic rhinitis and one extrinsic asthma. Prick tests from several brands of gloves gave strongly positive reactions (bigger than those to histamine), and radioallergosorbent tests for latex showed raised titres of specific IgE. A Prausnitz-Küstner test with serum from our first patient gave positive results in two healthy recipients.

Comment

During the past 10 years several reports have shown that latex eluting from surgical or cleaning gloves can sensitise people and cause local contact urticaria.^{3,4} The frequency of this allergy among doctors and nurses in the operating unit at University Central Hospital, Tampere, was 6.4%.³ This study, and one other,⁵ show that people with the allergy may be at risk during delivery, operations, and even vaginal examination. In addition to medical staff, people sensitised after wearing cleaning gloves made from latex may also be at risk, as in one of our patients. Surgical and cleaning gloves both contain latex allergen, but the amount of protein eluting from these gloves varies.

People who are allergic to latex are generally atopic, tend to be women, and have a history of irritation from wearing gloves. Prick testing with glove allergen will confirm the diagnosis, and many, though not all, people allergic to latex yield positive results to the radioallergosorbent test for latex, which is now commercially available.³ Patients should be informed of their allergy, and during operations or deliveries staff should use non-latex gloves—that is, gloves made from polyvinyl chloride or synthetic rubber.⁴ Rubber masks, tubes, and cuffs should also be avoided.

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(Accepted 13 July 1988)

Correction

Maternal serum screening for Down's syndrome in early pregnancy

A printer's error occurred in the authors' footnote of this paper by Professor Nicholas J Wald and others (8 October, p 883). Howard S Cuckle is CRC senior lecturer and not CRC technical lecturer as published.