under intensive care observation may be a safe alternative to mechanical ventilation in patients with severe pneumatosis cystoides and chronic respiratory insufficiency.

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Simple and effective method of removing starch powder from surgical gloves

Surgical glove powder shed during operative procedures is potentially hazardous.¹⁻³ The infrequent but troublesome effects of iatrogenic starch peritonitis after intraperitoneal surgery has stimulated glove manufacturers to print a warning on each packet of gloves and a recommendation to remove surface powder. Sterilised maize starch is used to prevent gloves sticking together during production and packaging. Several methods of removing starch powder have been described,⁴ in particular an easy method with a quick, reliable test of efficacy⁵; this has now been evaluated.

Method and results

After surgical gloves have been put on 10 ml of povidone-iodine surgical scrub (Betadine) is applied and the cleansing process continued for one minute. During this time the non-ionic surfactant detergent in the surgical scrub mobilises the starch granules from the surface of the glove. The iodine in the scrub combines with the starch to form blue-black starch iodide. The mixture is then washed off the gloves by rinsing under running sterile water (500 ml) over 30 seconds. Separation of the opposed forefinger and thumb gives a release stick sign as total removal of lubricating starch is approached. This is a palpable and audible sign denoting effective removal of starch.

An experiment was designed to count the number of starch granules remaining on surgical gloves (Regent Dispo surgeons' gloves) after removal by the above method and by other methods and when no attempt was made to remove the powder at all. Ten pairs of gloves were subjected to each

Efficacy of seven methods of removing starch from surgeons' gloves

Method	Median No of starch granules remaining mm ²	No of gloves with 100% starch removed	Significance of remaining starch compared with method (1)*
(1) One minute cleanse with Betadine, 30-second rinse	0	16/20	—
(2) 30-second cleanse with Betadine, 30-second rinse	1.0	6/20	Not significant
(3) 30-second scrub with Betadine using brush, 30-second rinse	1.3	8/20	p = 0.015
(4) 30-second scrub in bowl containing 1 litre 5% Betadine	17.5	0	p < 0.001
(5) 30-second scrub using brush in 1 litre water	24.85	0	p < 0.001
(6) 30-second rinse in 1 litre water in bowl	264	0	p < 0.001
(7) No attempt at removing powder	2720	0	p < 0.001

*Significance of difference from method (1) by Mann-Whitney U test.

method (see table), yielding 20 gloves for analysis. A 2 cm area was cut from the palmar aspect of the gloves. This was dried and stained with Lugol's iodine.⁴ The sample was mounted on a slide and examined by light microscopy. Starch granules were stained blue-black. Three 1 mm areas were counted to give a median number of granules per mm². The table gives the results.

Comment

Surgeons might think that using a scrubbing brush (methods 3, 4, 5) is potentially dangerous in promoting formation of small perforations in the glove. Rinsing the gloves in water leaves about 10% of the original starch content on the surface of the glove (method 6).

If surgeons wish to remove starch then a thorough cleanse with povidone-iodine surgical scrub for one minute followed by a rinse in running sterile water removes 99.8-100% of the original count and provides the surgeon with a reassuring aurotactile stick sign. The sticking of the gloves disappears once the tissue fluids from patients' wounds coat the gloves. It is important that all members of the surgical and nursing team participating in the operation follow this method to prevent contamination of the operative site with maize starch.

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Prednisone in amiodarone-induced thyrotoxicosis

Thyrotoxicosis has been observed during^{1,2} and after^{2,3} treatment with the iodine-containing antiarrhythmic drug, amiodarone, in patients with and without pre-existing thyroid disease. Among those without thyroid disease several patients have had a diffuse, soft, and painless goitre which disappeared after withdrawal of amiodarone.¹ These patients had severe clinical thyrotoxicosis similar to that after accidental or medical exposure to a large amount of iodine.^{1,4} Once symptoms of hyperthyroidism have developed treatment is a serious problem, as the fully iodinated thyroglobulin stores preclude a prompt response to drugs of the thionamide type and the Wolff-Chaikoff effect (the inhibition of the synthesis of thyroid hormone after administration of large doses of iodide) prevents the use of additional free iodine. Chopra⁵ observed a decrease in serum concentrations of T₃ and T₄ during treatment with dexamethasone. We therefore assessed the effect of prednisone on two patients with thyrotoxicosis, one case occurring during and the other after treatment with amiodarone.

Case reports

Case 1—After two years of successful treatment with amiodarone for recurrent supraventricular tachycardia, thyrotoxicosis with weight loss, insomnia, and permanent tachycardia developed in a 60-year-old man. Amiodarone was stopped, and on admission to hospital he was found to have a small, soft, and non-tender goitre. He was given a two-week course of prednisone (figure, top) after which T₄ and T₃ concentrations were normal. They rose again after prednisone withdrawal, T₄ to a thyrotoxic level and T₃ to a high normal level. When treatment with prednisone was restarted, the hormone concentrations fell again. The dose was tapered during the next two months. T₄ and T₃ concentrations remained normal after prednisone was discontinued and the goitre disappeared four months after the end of amiodarone treatment.

Case 2—A 40-year-old man was given amiodarone because of recurrent supraventricular tachycardia. After two years the drug was stopped because the arrhythmia was well controlled. One month later he showed clinical signs of thyrotoxicosis and had a small non-tender goitre. In-vitro T₃ uptake was 50%. Despite three weeks' treatment with carbimazole 60 mg/day the patient lost 10 kg in weight. On admission to hospital he had tachycardia, was sweating profusely, and had myopathy. Antibodies against thyroglobulin were 1/16 (positive) but were negative against microsomal antigen. Serum T₄ and T₃ concentrations were very high (figure, bottom). Urinary iodine

Serum T₃ and T₄ concentrations: (top) during treatment with prednisone alone (case 1) and (bottom) after addition of prednisone to treatment with carbimazole and propranolol (case 2). As the values in the cases were measured with different radioimmunoassays the absolute figures are not comparable.

excretion was 66 μ mol/day (normal range 0.8–1.6 μ mol/day). The patient was given propranolol and prednisone; carbimazole was continued. During prednisone treatment T₄ and T₃ concentrations fell rapidly. They promptly rose again after the drug was stopped. A second course of prednisone was therefore given and the dose tapered when the hormone concentrations decreased. The goitre had disappeared five months after amiodarone treatment had been stopped; thyroglobulin antibodies were absent and the patient is clinically well.

Comment

Thyrotoxicosis occurred during amiodarone treatment in case 1 and after treatment in case 2. Both patients had a transient, non-tender goitre. During prednisone treatment T₄ and T₃ concentrations fell and the condition of both patients improved. This effect was confirmed when prednisone treatment was interrupted; hormone concentrations rose again and clinical deterioration was evident.

Apparently, prednisone shortens the duration of the rise in concentrations of T₄ and T₃; its action on serum hormone concentrations is much more rapid than that of the hormone synthesis blocking drug carbimazole. Prednisone is of particular value if propranolol fails to control the clinical signs of hyperthyroidism (case 2). In case 1 the patient tolerated prednisone without any recognisable side effects, whereas the patient in case 2 developed transient cushingoid facial signs.

As the use of amiodarone is becoming more and more widespread, a simple and effective treatment for this particular kind of thyrotoxicosis, which is resistant to standard treatment, is needed because

of the long-lasting iodine overload of the thyroid during and after amiodarone treatment.

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Overt diabetes mellitus without glycosuria in a patient with cutaneous ureteroileostomy

Though a positive result to a urine test for glucose requires further investigation, a negative result by no means excludes diabetes. The classic cause of a false-negative result is a high renal threshold for glucose, which is present in advanced renal failure. Another cause that is not often remembered is a ureteroenterostomy. We report a case of overt diabetes mellitus without glycosuria in a patient with an ileal conduit and normal renal function.

Case report

A 59-year-old Caucasian man was admitted for investigation with a six-month history of unusual lethargy. Two years previously he had had a radical cystectomy with ileal loop urinary diversion for bladder cancer and had since remained well. He was not taking any drugs; his weight, appetite, urine output, and stoma function were normal. Examination of the heart, lungs, abdomen, stoma, eyes, and nervous system showed no abnormalities. Urinalysis one hour after eating showed a pH of 8, proteinuria +, and no glucose or ketones. Laboratory study showed a haemoglobin concentration of 14 g/dl, a leucocyte count of $5.8 \times 10^9/l$ with normal differentials, a normal platelet count, and an erythrocyte sedimentation rate of 30 mm in the first hour. Plasma sodium concentration was 135 mmol(mEq)/l, potassium 3.00 mmol(mEq)/l, bicarbonate 14 mmol(mEq)/l, urea 6.2 mmol/l (37 mg/100 ml), creatinine 0.11 mmol/l (12.4 mg/100 ml), and chloride 115 mmol(mEq)/l. Blood sugar concentration measured at random was 20.5 mmol/l (369 mg/100 ml), and two fasting concentrations were 17.8 and 16.5 mmol/l (320 and 297 mg/100 ml) respectively. Appearances on chest x-ray and electrocardiogram were normal. His 24-hour urine volume was 1400 ml, creatinine clearance 84 ml/min, and total proteinuria 0.2 g. Results of an excretory urogram were normal. Midstream urine culture grew no pathogens, and daily urine testing for glucose gave negative results throughout his stay in hospital.

He was treated with insulin and potassium supplements and subsequently discharged taking glibenclamide and sodium bicarbonate. Four weeks after discharge his fasting plasma glucose, bicarbonate, and potassium concentrations had returned to normal, and he remained well.

Comment

Though diabetics with an ileal conduit may have glycosuria, total reabsorption of glucose from the loop may sometimes occur.¹ This case is representative of the occasional patient whose urine may be negative for sugar and thereby mislead the unwary clinician. The appearance of glucose in urine normally depends on three factors: the plasma