Outcome of wounds in the two groups of patients

Type of surgery	Bather group (n = 50)		Traditional group (n = 50)	
	Healed	Infected	Healed	Infected
Biliary	11	2	13	2
Upper gastrointestinal tract, small bowel	7		5	
Large bowel, appendicectomy	1		5	1†
Herniorrhaphy, groin surgery	29	1*	24	
Other	2	1*	3	1
All wounds	50	4	50	4

*Fibroliposarcoma with groin metastases.

†Caecal carcinoma, faecal fistula.

cases. Extensive bacteriological examination (phage typing etc) of the patients and staff showed the nasal carriage of a typed *Staphylococcus aureus* in one surgeon who had been concerned with three patients with identical infections.

Comment

The main problem of communal bathing facilities in hospital is cross-infection of surgical wounds. The infections in this small series were probably introduced during operation, and no cross-infection occurred as a result of bathing. Nature's coagulum is probably the best protection against bacterial invasion in surgical wounds.⁵ The application of a plastic spray acted as a barrier in preventing soaking of silk sutures and softening of the wound coagulum by water. Baths were disinfected and cleaned with materials available on NHS wards and known to reduce the bacteria count in the bath and bath water.

The shower requires less attention, but for frail or elderly patients the vertical posture in a steamy confine is contraindicated and the more reassuring and familiar bath is recommended. The overall advantage of early postoperative bathing is the physical and emotional benefit of cleanliness without the increased risk of infection or delay in healing.

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Clinical application of antipyrine half life in saliva in a patient with osteomalacia

Chronic ingestion of enzyme-inducing drugs is recognised as a cause of osteomalacia in epileptics.¹ Their use probably contributes to the renal osteodystrophy of patients on regular haemodialysis.² Many conditions associated with vitamin D resistance or deficiency may be aggravated by enzyme-inducing agents. Assessment of individual patients is difficult, however, because there is no clinical test of microsomal enzyme induction that is both convenient for the patient and a reliable estimate. We describe a patient with osteomalacia in whom estimation of antipyrine half life from saliva was used to show enzyme induction.

Case report

The patient was a 74-year-old woman with long-standing mitral incompetence, atrial fibrillation, and recurrent congestive cardiac failure. She was being treated with digoxin 0.125 mg/day, frusemide 160 mg/day, and spironolactone 75 mg/day and had been dependent on sodium butobarbitone (Soneryl) 300 mg nightly for nine years.

She complained of pain in the back and right side of the chest and was tender over the 5th and 6th ribs. Investigation showed a serum calcium concentration of 2.0 mmol/l (8 mg/100 ml) (normal 2.1-2.6 mmol/l (8.4-10.4 mg/100 ml)), serum phosphate concentration of 0.8 mmol/l (2.5 mg/100 ml) (normal 0.8-1.4 mmol/l (2.5-4.3 mg/100 ml)), and alkaline phosphatase level of 224 IU/l (normal 30-130 IU/l), predominantly bone isoenzyme. Haemoglobin, white cell count, erythrocyte sedimentation rate, serum iron levels, and vitamin B₁₂ levels were normal, but she had a low serum folate concentration of 3.4 µg/l (normal 6-21 µg/l). The γ-glutamyltranspeptidase (GGT) concentration was 179 IU/l (normal 5-25 IU/l). Radiographs showed rarefaction of spine, ribs, and hands but no Looser's zones or fractures. A dietary history showed a specific deficiency of vitamin D (intake 27 IU/week; recommended 100 IU/week), and folate (40 µg/week; recommended 200 µg/week).

Butobarbitone and spironolactone were discontinued. Blood samples taken at 10 am 12 hours before and 12 hours after the last dose of butobarbitone were analysed for butobarbitone by gas-layer chromatography with amylobarbitone as internal standard and gave plateau values of 28.3 µmol/l (6.01 µg/ml) and 28.9 µmol/l (6.13 µg/ml). A sample 24 hours later showed a concentration of 8.06 µmol/l (1.71 µg/ml). Twenty-three hours afterwards, when the estimated butobarbitone would have fallen to less than 2.36 µmol/l (0.5 µg/ml), 600 mg antipyrine (phenazone BPC) was given orally. Saliva samples were collected at three, five, eight, 24, and 32 hours, using a 25-mg ascorbic acid tablet as a stimulus with tongue and cheek movements over three to five minutes. Antipyrine concentrations were estimated as described.³ Antipyrine half life was 5.53 ± 0.24 (SD) hours (95% confidence limits) compared with normal values of 17.4 ± 6.8 in elderly patients.⁴

Nitrazepam was substituted as a hypnotic and treatment for osteomalacia started with calcium with vitamin D BPC 1 tablet/day. Four weeks later the antipyrine half life was again estimated and had increased to 18.00 ± 3.78 hours. The patient was asymptomatic and biochemical values were almost normal (see figure). She was discharged on digoxin (Wellcome) 0.25 mg/day, frusemide 250 mg/day, Sando-K (Sandoz) 3 tablets/day, calcium with vitamin D 1 tablet/day, and nitrazepam nightly.

Discussion

This patient had received two enzyme-inducing agents, butobarbitone and spironolactone, for nine years. The antipyrine half life was extremely short, in the range associated with enzyme induction.⁴ Induction was confirmed by the threefold increase, after four weeks,

Changes in alkaline phosphatase, GGT, serum calcium and phosphate concentrations, and antipyrine half life after withdrawal of butobarbitone. Horizontal dotted lines represent upper and lower limits of normal.

Conversion: SI to traditional units—Calcium: 1 mmol/l ≈ 4 mg/100 ml. Phosphate: 1 mmol/l ≈ 3 mg/100 ml.

to a value more characteristic of an elderly patient.⁵ Our patient's diet was also deficient in vitamin D. The combination of nutritional deficiency and barbiturate habituation may cause more morbidity in the elderly than is generally recognised.

Although several indices of enzyme induction rely on a single estimation (serum GGT, urinary 24-hour glutaric acid, or 6 β -OH-cortisol excretion) they are non-specific and correlate poorly in individual subjects. Antipyrine half life is widely used as an index of drug oxidation but the need for serial blood samples is time consuming and unpleasant for the patient. The use of saliva samples overcomes both problems and provides accurate estimations of half life.³ The simplicity of sample collection makes it analogous to glucose tolerance tests by finger prick, which can be performed by paramedical staff, and it could have wider clinical application than plasma half life estimations.

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Conception and congenital abnormalities after chemotherapy of acute myelogenous leukaemia in two men

Improvements in cytotoxic chemotherapy for malignant disease have resulted in an increasing number of patients who remain disease-free after stopping chemotherapy. Such patients may wish to have a family and need advice about their fertility and the potential risk to the fetus if conception takes place. We report the cases of two men with acute myelogenous leukaemia (AML) who sired offspring with congenital abnormalities after chemotherapy was stopped.

Case 1

AML was diagnosed in a 17-year-old patient in July 1972. Initially he received seven courses of cytarabine (CA) 50 mg intravenously on days 1-3 followed by daunorubicin (DR) 100 mg intravenously on day 7. Each course was followed by a five-day interval. He was then given thioguanine (TG) 140 mg daily and cyclophosphamide 350 mg weekly by mouth for six weeks, followed by three further courses of DR 90 mg on day 1 and CA 130 mg on days 1-5. In February 1973 he received CA 130 mg for five days. Thereafter he refused further chemotherapy. The bone marrow, however, showed complete remission and he started weekly immunotherapy with BCG and allogeneic AML cells.¹

In June 1974 his girlfriend gave birth to a full-term boy who had Fallot's tetralogy and syndactyly of the first and second digits of the right foot.

Case 2

A 23-year-old man began treatment for AML in January 1973. Five courses of induction chemotherapy were given. Each consisted of DR 140 mg intravenously on day 1 and CA 200 mg intravenously daily on days 1-5 followed by a 10-day interval. In March complete remission was obtained and he was then given weekly immunotherapy. He also received monthly courses of CA 180 mg intravenously and TG 160 mg by mouth daily for five days, alternating with DR 140 mg intravenously on day 1 and CA 180 mg intravenously daily for five days. Chemotherapy was stopped in March 1974. Since then his remission was maintained with immunotherapy alone.

In February 1975 his wife was delivered of a stillborn anencephalic fetus after eight month's gestation.

Discussion

Cytotoxic drugs may cause failure of both testicular and ovarian function, but fertility often recovers with time.^{2,3} Such drugs may be teratogenic when given to the mother in early pregnancy⁴ but studies of patients of both sexes who have discontinued treatment with various agents have produced no evidence of an increased incidence of congenital abnormalities in their offspring.⁵ There is, however, little information on the effect of agents commonly used to treat AML, such as DR and CA, on reproductive function. These cases illustrate that patients who have received high doses of such drugs for AML may be fertile a few months (seven and three months in our patients) after stopping chemotherapy. They also suggest that the possibility of damage to the germ cells needs to be seriously considered. While there is clearly no proof that the association of the chemotherapy with the congenital abnormalities was more than coincidental, the disturbing fact remains that malformations have occurred in the offspring of the only two patients of ours with AML who have managed to produce children.

Until recently most patients with AML in remission have received some kind of maintenance chemotherapy that probably suppresses gonadal function to some extent. With the increasing use of immunotherapy alone during remission¹ more patients may be seen in whom chemotherapy is stopped and fertility recovers. Only by recording further conceptions by such patients, whatever the outcome, will we be able to obtain a clearer picture of the risks involved and be able to give appropriate advice.

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Sarcoma after intramuscular iron injection

With the help of the Medical Department of the Office of Population Censuses and Surveys (OPCS) the Committee on Safety of Medicines has carried out a study of drug histories in a series of cases of sarcoma of the buttock. The series comprised all notifications of the diagnosis during about two years (1968 and 1969) and a few cases notified before and after this period. Altogether there were 196 cases, 169 identified from cancer registry entries and 27 from death certificates. Drug histories could be obtained in only 90 cases (46%), apparently because many patients had died since diagnosis and notes had been destroyed or lost. Of the 90 cases intramuscular iron had been given in four. In three of these four cases there was an interval of two years or more between the injections and the diagnosis of sarcoma.

Case histories

Histories are necessarily imprecise because some information, such as numbers of injections into each buttock, was not recorded and could not