When all results were considered together the urine tube immunoassay (Model) gave 100% sensitivity and specificity as well as 100% predictive values for normal and abnormal results. The serum tube enzyme linked immunosorbent assay, while showing 100% sensitivity, was less specific, and the dipsticks were intermediate in value.

Comment

Our results are sufficiently encouraging to suggest that measurement of urinary hCG with ultrasensitive tube or dipstick assays should be the first line investigation in women presenting with non-specific abdominal complaints. Results equivalent to those of qualitative rapid radioimmunoassays may be obtained and appropriate further investigations such as laparoscopy, ultrasonography, and culdocentesis instituted. Qualitative tests do not differentiate ectopic from intrauterine pregnancy but offer a rapid and convenient assessment of secretion of hCG. The current assays may be simplified, and preliminary results using a two minute test (Icon, Hybritech) have been as good as those obtained with the assays described here (paper submitted for publication). These relatively simple, convenient, and commercially available enzyme labelled assays should be widely available in outpatient departments and wards for 24 hour use.

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Restraint of babies in cars

Adequate restraint considerably reduces death and injury to infant passengers in car accidents.^{1,2} The official recommendation in Great Britain for the restraint of babies aged 0-6 months (weight <9 kg) is that the baby should be laid in a carrycot that is held in the rear seat by straps fixed to suitable anchor points on the car body. We determined the degree of compliance with this recommendation by questionnaire and by observation.

Subjects, methods, and results

During December 1984 and January 1985 public postnatal inpatients in the Princess Anne Hospital were studied with the approval of the consultant obstetricians and Southampton ethical committee. The women were assigned to an interview or a control group according to the postnatal ward of admission; the designation of wards was changed midway through the study. Mothers who did not have access to a car or whose babies stayed in hospital for more than 12 days after delivery were excluded. Those in the interview group were questioned about access to a car, knowledge of the recommendations for carrying babies in cars, and their intended practice. Those in the control group were given a sham interview (breast feeding survey) in which we determined whether they had access to a car; no other reference was made to cars or to safety. Interviews were stopped when 100 had been successfully completed in each group (this required 258 interviews altogether). A follow up questionnaire was sent to all subjects three or four months after the birth of their child. The key question asked was: "When you last took your baby out in a car how did you carry him/her?"

Altogether 138 women replied to the questionnaire. The interview group showed lower compliance with the recommended practice than the control group, and therefore the interview did not artificially improve compliance. Data were pooled to give a total compliance of 55/138 (40 (binomial SD 4)%). The reasons for lack of compliance were elicited by a check list (table). When questioned about the proportion of journeys in the car for which their baby was restrained 67 respondents said that they never used restraints and only 29 that they always used

them. Of 49 mothers in the interview group who had intended to restrain their baby, only 19 had done so on the most recent journey.

Observers waited at the exits of several large supermarket car parks. Of the 295 babies seen in cars, only 129 appeared to be adequately restrained (compliance 44 (33)%). There was good agreement between the results of the questionnaire study and this observational study, which was performed before the follow up questionnaire was administered.

Reasons for lack of compliance with recommended practice for restraint (n = 138; multiple responses allowed)

Car unsuitable	69
Too much bother	36
Too expensive	26
Baby gets fed up on long journey	26
No room in car	24
Baby doesn't like it	21
Lack of knowledge	13
Not worth using on short journey	11
Own two cars, use restraint in only one	8
Don't think they are worth while	0
No reason given	8
Always use restraint	34

Comment

Only about 40% of babies carried in cars in Southampton are adequately restrained. This is much lower than the figures found in observational studies in Australia (70%), New Zealand (66%), and the United States (60%).^{3,5} The reasons for non-compliance (table) may be summarised in three points: (1) inconvenience, cost, and lack of understanding about fitting restraints; (2) lack of room in the car; and (3) lack of information and understanding about the benefits of restraints.

The problems of inconvenience, lack of room in the car, and resistance by the baby could be alleviated by modifying British practice to recommend restraint systems which hold the baby in a semireclining position facing the back of the car. The problem of cost has been overcome in New Zealand by an organisation supported by the government making suitable restraints available at low rental. The problem of education and information is one that should be accepted by the medical profession and other groups as a challenge to be jointly overcome.

We thank the medical and nursing staff of the Princess Anne Hospital; pupils at Richard Taunton College, who helped in the observational study; and Dr K S Cliff for his help.

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Glucomannan and risk of oesophageal obstruction

Glucomannan (glucose/mannose polymer) is considerably hygroscopic and on contact with water swells and becomes a viscous gel. In this form it is a normal Japanese foodstuff. Like guar (galactose/mannose) it has been used to treat diabetes mellitus.¹ Recently, dry, non-expanded glucomannan has been marketed in Australia as an aid to dieting, the claim being that it inhibits the appetite by swelling in the stomach, producing what one

manufacturer describes as a "pleasant feeling of fullness." During 1984-5 seven cases of oesophageal obstruction caused by swelling of tablets containing glucomannan were reported to the Australian Adverse Drug Reactions Advisory Committee. We examined these cases and report our findings.

Case reports and study

All patients were women aged 18-62 (mean 46) years who were taking glucomannan tablets for weight reduction. None had oesophageal disease. Obstruction was complete in five of the seven cases and in all but one was caused by a single tablet. Four of the five complete obstructions were in the upper third of the oesophagus; the site in the fifth case was not noted. The level of obstruction was not established in the two other patients, whose severe dysphagia resolved spontaneously after five and 17 hours. Removal of the expanded tablets by rigid oesophagoscopy under general anaesthesia was necessary in the cases of complete obstruction, and in a woman aged 59 this was complicated by oesophageal perforation leading to mediastinitis, which resulted in her spending two months in hospital.

We measured the expansion rates of six products containing 500 mg glucomannan. These included the two products taken by the patients reported on above, Slim Plan F and Manna Diet Tablets: Slim Plan F was taken by five of these patients, and we believe that it is available in several countries. We tested nine samples of each brand by placing them in up ended, sealed syringes containing tap water or 0.1 molar solution of hydrochloric acid maintained at room temperature or 37°C in a water bath. Volumes were estimated frequently for 20 minutes and at intervals for 12 hours.

Expansion rates varied: Slim Plan F and Manna Diet Tablets increased their mean volumes, from <1.0 ml to 6.9 and 3.1 ml, respectively, at one minute; 8.3 and 4.7 ml at two minutes; 11.8 and 14.8 ml at six minutes; and 12.2 and 16.0 ml at 10 minutes. An encapsulated form started to swell only after six minutes' immersion. Slim Plan F and Manna Diet Tablets expanded significantly faster than any other brands ($p < 0.001$, analysis of variance). No important effects of temperature or acidity were observed. Final volumes ranged from 12.0 to 17.5 ml, so that the rate at which the tablets expanded varied much more than the total extent of expansion. The viscosity of the expanded tablets increased rapidly, and they became rubbery and retained the form of the syringe after removal (figure).

Slim Plan F tablet before and 10 minutes after immersion in water for 30 seconds. The viscosity had increased to the extent that it would bounce when thrown on the floor.

Comment

Obstruction of the oesophagus is a well known hazard of guar and bulk laxatives. Most patients affected have been elderly, and the obstruction has commonly been of the distal oesophagus.^{2,5} In contrast, obstruction by glucomannan, like obstruction by a solid foreign body, often occurs in the upper oesophagus, and the patients have been generally younger. Glucomannan seems to constitute a particular risk because of its great capacity to absorb water and because of the high expansion rates achieved by some proprietary brands. The long history of apparent safe use of this fibre by the Japanese is perhaps because they allow it to expand before ingestion.

In May 1985 marketing of tablets containing glucomannan was prohibited under the consumer product safety provisions of the Trade Practices Act. At present glucomannan in encapsulated and powder forms is still available in Australia.

We thank the doctors who reported these cases to the committee and gave permission for their publication. We also thank Mr Brooke Murphy for statistical

analyses. Fuller details of these cases and a complete list of references are available on request.

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Oral symptoms and candida in the terminally ill

The prevalence of *Candida albicans* in the mouth is 29-50% among healthy adults' mouths,¹ and increased among immunocompromised patients and patients with cancer.^{2,3} This study assessed the prevalence of oral candida in terminally ill patients and correlated oral symptoms and signs with bacteriological evidence of oral candidiasis and antifungal treatment.

Patients, method, and results

Mouth swabs were taken at weekly intervals from the pharyngeal area and the labial-gingival fold near the molars in 140 consecutive patients (71 women) at this hospice (inpatients and outpatients). Swabs impregnated with charcoal and Stewart's transport medium were used. A questionnaire was completed concurrently by the nurse, recording mouth problems and drug treatment. All results were retained by the bacteriology department during the study. The decision to treat patients with oral nystatin was taken on clinical grounds, and additional swabs and data were collected before treatment. Patients were studied until death, or for a maximum of four months. None received chemotherapy or radiotherapy in the four weeks before the study or during it.

χ^2 analysis with Yates's correction was used to compare the groups with and without candida and the group treated with nystatin with the untreated patients. Confidence intervals are reported as these more appropriately reflect the clinical spread of data.

Prevalence of mouth disorders and of administration of drugs in patients positive and negative for candida. (Figures are numbers (%) of patients)

	Candida positive (n=112)	Candida negative (n=28)	Significance (χ^2 test)	95% Confidence interval
Symptoms:				
Loss of taste	31 (28)	9 (32)	NS	-0.23 to +0.15
Dysphagia	23 (21)	9 (32)	NS	-0.30 to +0.08
Sore tongue	27 (24)	3 (11)	NS	-0.01 to +0.27
Dry mouth	71 (63)	13 (46)	NS	-0.04 to +0.38
Red mucosa	32 (29)	4 (14)	NS	-0.01 to +0.30
Dirty tongue	79 (71)	15 (54)	NS	-0.03 to +0.37
White lesions	48 (43)	5 (18)	$p < 0.01$	+0.08 to +0.42
Cheilitis	12 (11)	2 (7)	NS	-0.07 to +0.15
Drugs:				
Steroids	47 (42)	9 (32)	NS	-0.09 to +0.30
Antibiotics	27 (24)	4 (14)	NS	-0.05 to +0.25
Morphine mixture	29 (26)	9 (32)	NS	-0.25 to +0.13
Morphine tablets (sustained release)	52 (46)	11 (39)	NS	-0.13 to +0.27
Laxative syrup	75 (67)	17 (61)	NS	-0.14 to +0.26
Nystatin	34 (30)	10 (35)	NS	-0.25 to +0.15