13 Loevinsohn BP. Health education interventions in developing countries: a methodological review of published articles. *Int J Epidemiol* 1990;4:788-94.
14 Cochrane Collaboration. *Report*. Oxford: Cochrane Centre, 1994.
15 Oakley A, Fullerton D, Holland J, Arnold S, Hickey D, Kelley P, *et al. SSRU database project: reviews of effectiveness: HIV prevention and sexual health education interventions*. London: Social Science Research Unit, 1994.
16 MacDonald G, Sheldon B, Gillespie J. Contemporary studies of the effectiveness of social work. *British Journal of Social Work* 1992;22:615-43.
17 Abramson PR, Sekler JC, Berk R, Cloud MY. An evaluation of an undergraduate course on AIDS. *Evaluation Review* 1989;13:516-32.
18 Barth RP, Fetro JV, Leland N, Volkan K. Preventing adolescent pregnancy with social and cognitive skills. *Journal of Adolescent Research* 1992;7: 208-32.
19 DiClemente RJ, Pies CA, Stoller EJ, Straits C, Oliva GE, Haskin J, *et al.* Evaluation of school-based AIDS education curricula in San Francisco. *Journal of Sex Research* 1989;26:188-98.
20 Rotheram-Borus MJ, Koopman C, Haignere C, Davies M. Reducing HIV sexual risk behaviors among runaway adolescents. *JAMA* 1991;266: 1237-41.
21 Thomas LL, Long SE, Whitten K, Hamilton B, Fraser J, Askins RV. High school students' long term retention of sex education information. *J Sch Health* 1985;55:274-8.
22 Christopher FS, Roosa MW. An evaluation of an adolescent pregnancy prevention program: is "Just say no" enough? *Family Relations* 1991;39: 68-72.
23 Hamalainen S, Keinanen-Kiukaanniemi S. A controlled study of the effects of one lesson on the knowledge and attitudes of schoolchildren concerning HIV and AIDS. *Health Education Journal* 1992;51:135-9.
24 Herz EJ, Reis JS, Barbara-Stein L. Family life education for young teens: an assessment of three interventions. *Health Educ Q* 1986;13:201-21.
25 Wanlass RL, Kilmann PR, Bella BS, Tarnowski KJ. Effects of sex education on sexual guilt, anxiety, and attitudes: a comparison of instruction formats. *Arch Sex Behav* 1983;12:487-502.
26 Wenger NS, Greenberg JM, Hillborne LH, Kusseling F, Mantogich M, Shapiro M. Effect of HIV antibody testing and AIDS education on communication about HIV risk and sexual behavior: a randomized controlled trial in college students. *Ann Intern Med* 1992;117:905-11.
27 Ashworth CS, Durant R, Newman C, Gaillard G. An evaluation of school-based AIDS-HIV education program for high school students. *J Adolesc Health* 1992;13:582-8.
28 Thomas BH, Mitchell A, Devlin C, Goldsmith C, Singer J, Watters D. Small group sex education at school: the McMasters team program. In: Miller BC, Card JJ, Paikoff RL, Peterson JL, eds. *Preventing adolescent pregnancy*. Newbury Park, CA: Sage Publications, 1992:28-52.
29 Hofferth SL. Programs for high risk adolescents: what works? *Evaluation and Program Planning* 1991;14:13-6.
30 Smith R. Filling the lacuna between research and practice: an interview with Michael Peckham. *BMJ* 1993;307:1403-7.
31 Sheldon TA. Please bypass the PORT. *BMJ* 1994;309:142-3.
32 Altman DG. The scandal of poor medical research. *BMJ* 1994;308:283-4.
33 Chalmers TC, Matta RJ, Smith H Jr, Kunzler AM. Evidence favoring the use of anticoagulants in the hospital phase of acute myocardial infarction. *N Engl J Med* 1977;297:1091-6.
34 Kirby D. The effects of school sex education programs: a review of the literature. *J Sch Health* 1980;50:559-63.
35 Reader EG, Carter RP, Crawford A. AIDS—knowledge, attitudes and behaviour: a study with university students. *Health Education Journal* 1988;47:125-7.
36 Stout JW, Rivara FP. Schools and sex education: does it work? *Pediatrics* 1989;83:375-9.
37 Woodcock C, Glickman M, Barker M, Power C. *Children, teenagers and health*. Buckingham: Open University Press, 1993.
38 Wight D. Impediments to safer heterosexual sex: a review of research with young people. *AIDS Care* 1992;4:11-21.
39 Massey DE. School sex education: knitting without a pattern? *Health Education Journal* 1990;49:134-42.

(Accepted 23 November 1994)

Diuretic effect of frusemide in patients with nephrotic syndrome: is it potentiated by intravenous albumin?

Fehmi Akcicek, Turkay Yalniz, Ali Basci, Ercan Ok, Evert J Dorhout Mees

Ege University School of Medicine, Department of Internal Medicine, Division of Nephrology, Bornova 35100, Izmir, Turkey
Fehmi Akcicek, *assistant professor*
Turkay Yalniz, *medical student*
Ali Basci, *head of renal department*
Ercan Ok, *postdoctoral fellow in nephrology*
Evert J Dorhout Mees, *professor of nephrology*

Correspondence to:
Dr Akcicek.

BMJ 1995;310:162-3

We investigated the claim that infusion of albumin potentiates the diuretic effect of frusemide in patients with the nephrotic syndrome.[1]

Patients and methods

We selected 12 inpatients with the nephrotic syndrome according to two criteria: (*a*) failure to lose weight after bed rest and a 40 mmol sodium diet and (*b*) presence of minimal lesions or a well preserved glomerular histology on renal biopsy. We gave each patient three treatments randomly from 8 am to noon, at intervals of at least two days—infusion of albumin 0·5 g/kg given as a 20% solution for four hours; infusion of frusemide 60 mg bolus followed by 40 mg/h for four hours; and a combined treatment of both types of infusion. We collected urine on the treatment days from 8 am to 2 pm and from 2 pm through to 8 am the next day and on control days from 8 am to 8 am the next day.

Four patients were excluded from the study (one became temporarily anuric, two lost their oedema before completion, and one failed to comply). Histological examination in the remaining eight patients showed minimal lesions (six patients), amyloidosis (one), and membranoproliferative nephritis (one). Serum creatinine concentrations ranged from 106·1 to 212·2 μmol/l, plasma albumin concentrations were 11 to 22 g/l, and blood pressure ranged from 100/65 to 140/90 mm Hg. The treatment sequences (each of them in two patients) were albumin, frusemide, albumin and frusemide; albumin, albumin and frusemide, frusemide; frusemide, albumin and frusemide, albumin; albumin and frusemide, albumin, frusemide. Care was taken that grossly apparent clinical oedema was present at the beginning of each treatment.

Results

During the infusion of albumin, plasma albumin concentrations increased from 17·3 (SD 1·1) to 23·6 (2·3) g/l while the packed cell volume decreased from 0·33 (0·01) to 0·27 (0·01), resulting in a calculated increase in plasma volume of 30%. During the combined infusion of albumin and frusemide the corresponding values were 17·0 (1·2) to 23·4 (2·4) g/l and 0·33 (0·01) to 0·28 (0·01) respectively.

The table shows the mean changes in volume of urine and the mean excretions of sodium and potassium during the three different treatments. Albumin alone caused a small but negligible increase in volume of urine and excretion of sodium in all patients. In contrast, frusemide induced more than a 10-fold increase in volume of urine and 60-fold increase in excretion of sodium. The effect of combined albumin and frusemide was similar to that of frusemide alone. Excretion of potassium increased to the same degree (3-5 times control) after frusemide and combined albumin and frusemide. During the 18 hours immediately after infusion of albumin, volume of urine and excretion of sodium remained slightly raised compared with previous control days. During the control days the volume of urine and excretion of sodium returned to variable low levels never exceeding 40 mmol/24h.

Results of three infusion treatments given to eight subjects with nephrotic syndrome. Values are means (SD)

	Albumin	Frusemide	Albumin and frusemide
Volume of urine (ml/min) during:			
24 Hours before infusion*	0·69 (0·32)	0·73 (0·39)	0·79 (9·21)
Infusion	1·24 (0·47)	8·49 (2·9)†	9·21 (4·11)†
18 Hours after infusion	1·11 (0·54)	0·77 (0·26)	1·38 (0·50)
Excretion of sodium (μmol/min) during:			
24 Hours before infusion*	19 (8)	15 (14)	12 (9)
Infusion	54 (32)	934 (355)†	884 (453)†
18 Hours after infusion	50 (28)	42 (26)	70 (45)
Excretion of potassium (μmol/min) during:			
24 Hours before infusion*	19 (4)	20 (8)	26 (11)
Infusion	28 (9)	104 (67)†	83 (38)†
18 Hours after infusion	20 (6)	25 (9)	28 (5)

*Control period. †$P < 0·001$ (*v* albumin).

Comment

Our study confirms previous reports that albumin causes negligible natriuresis in patients with strong sodium retention.[1] Frusemide in sufficient dosage proved strongly natriuretic but we could not establish any potentiation of the frusemide effect by infusion of albumin. Only two studies have claimed a synergistic effect of combined albumin and frusemide, but both were retrospective and did not compare the effects of frusemide alone with those of combined frusemide and albumin in the same patients.[2,3] Our study is the first to do so under controlled conditions. Albumin inside the renal tubules has been shown to bind frusemide and thus blunt its diuretic action.[4] The increase in tubular albumin that occurs after infusion of albumin may have exerted some inhibitory action in our subjects, although because we applied a maximally effective dose such an effect is less likely. Our results do not support the use of albumin in the treatment of patients with the nephrotic syndrome.

1 Rabelink TJ, Bijlsma JA, Koomans HA. Iso-oncotic volume expansion in the nephrotic syndrome. *Clin Sci (Colch)* 1993;84:1-6.
2 Davison AM, Lambie AT, Verth AH, Cash JD. Salt-poor human albumin in management of nephrotic syndrome. *BMJ* 1974;i:481-4.
3 Weiss RA, Schoeneman M, Griefer I. Treatment of severe nephrotic edema with albumin and frusemide. *New York State Journal of Medicine* 1984;84:384-6.
4 Kirchner KA, Voelker JR, Brater DC. Intratubular albumin blunts the response to frusemide—a mechanism for diuretic resistance in the nephrotic syndrome. *J Pharmacol Exp Ther* 1990;252:1097-101.

(Accepted 25 November 1994)

Parents in the recovery room: survey of parental and staff attitudes

P A Hall, J F Payne, C G Stack, M A Stokes

Department of Anaesthesia, Children's Hospital, Ladywood Middleway, Birmingham B16 8ET
P A Hall, *clinical fellow*
J F Payne, *clinical fellow*
C G Stack, *consultant*

Department of Anaesthesia, University of Birmingham, Edgbaston, Birmingham B15 2TH
M A Stokes, *senior lecturer*

Correspondence to:
Dr Stokes, Department of Anaesthesia, Children's Hospital, Ladywood Middleway, Birmingham B16 8ET.

BMJ 1995;310:163-4

It is unusual in British hospitals for parents to be with their child while recovering from anaesthesia, although their presence during induction of anaesthesia is now common. Parents are encouraged to be with their child in other clinical areas,[1] and American experience suggests many parents value being present in the recovery room.[2] Before introducing this practice in our hospital we sought to determine the attitudes of parents and staff to parental presence during recovery from anaesthesia.

Subjects, methods, and results

We invited the parents of 150 consecutive children presenting for elective surgery to come to the recovery room as their child emerged from anaesthesia. Recovery staff decided when to call the parent, with the guidelines that the child should be awakening, maintaining his or her airway unsupported, and cardiovascularly stable, although not yet fully conscious. Parents completed one questionnaire before coming to the anaesthetic room and another on leaving the recovery area. Recovery staff completed a questionnaire after the family had left. Questions were asked as statements and responses indicated as strongly agree, agree, disagree, or strongly disagree. The study was approved by our ethics committee and parents gave informed consent.

The table gives the results. Only three parents initially did not want to accompany their child to the recovery room, although one mother changed her mind. A further 10 had left the ward to find refreshments when they were called to the recovery room and so were unable to attend.

After initial reservations, recovery staff felt that parental presence was worth while. Their attitude became more positive as the trial progressed; parental presence was judged a success in 29 (58%) of the first 50 cases but this increased to 49 (98%) of the last 50 cases, despite some parents who were distracting and "got in the way."

Responses of parents and nurses to questionnaires on parental attendance at recovery room

	Strongly agree/ agree	Strongly disagree/ disagree
Preoperative parental questionnaire (144 returned):		
You would accompany your child to the anaesthetic room	142	1
You would like to accompany your child to the recovery room	141	3
Your presence will be helpful to your child in the recovery room	143	1
You will be able to comfort your child in the recovery room	143	0
You will be in the way in the recovery room	9	133
You find it difficult to cope with the thought that your child might be distressed or in pain after the operation	67	76
You are frightened by the thought of going to the recovery room	20	122
You are worried that you might see an operation taking place	12	132
You are worried that you might feel unwell	15	127
The nursing staff want you to accompany your child	126	15
The doctors want you to accompany your child	124	16
Postoperative parental questionnaire (132 returned, 132 parents attended):		
Your presence was helpful to your child in the anaesthetic room	132	0
Your presence was helpful to your child in the recovery room	130	2
You were able to comfort your child in the recovery room	129	3
You got in the way in the anaesthetic room	2	130
You got in the way in the recovery room	4	128
You found the recovery room frightening	7	125
The recovery room made you feel anxious	23	109
The recovery room made you feel unwell	5	127
If your child had another operation you would choose to go to the recovery room with him/her	130	2
Nursing questionnaire (132 returned):		
The parent's presence was helpful to you in recovery	103	27
The parent's presence was helpful to the child in recovery	104	25
The parent appeared to be comfortable in recovery	110	21
The parent looked distressed to be in recovery	19	113
The parent got in the way in recovery	10	121
You were distracted from your work by the parent's presence	24	107
You felt you were looking after "two" patients, ie, parent and child	31	101
You would like parental presence in recovery to become a permanent arrangement	80	41

Comment

Despite some anxieties parents wanted to be with their child during recovery from anaesthesia and surgery. Most felt that they could help and comfort their child. We do not know, however, if parental presence during recovery reduces children's stress in a similar way to that shown during induction of anaesthesia.[3]

Staff quickly learnt to cope with parents as observers. The worries of clinical staff about parents witnessing serious postoperative complications (for example, airway obstruction, haemorrhage) were unfounded. It is usually possible to predict which children are likely to have difficulties postoperatively, and parents were not summoned until the child's airway was secure. No parent was asked to leave the recovery room unexpectedly. Indeed, one parent was able to reassure a recovery nurse, telling her that "the bleeding was much worse last time."

While a child is in hospital parents should not be considered as visitors and should be encouraged at all times to offer care and support for their child, unless the interests of the child preclude this.[4] We believe that parents should be present during emergence from anaesthesia whenever possible. Unwilling parents, however, should not be pressurised. Bevan *et al* have shown that high anxiety levels in parents are associated with more behavioural disurbances in children.[5] A similar pattern would be expected in the recovery room.