probably normal, increased vascular reactivity was shown by high resting peripheral vascular resistance and a reduced response in a cold pressor test. Vasoconstriction, induced by cold that led to an increase in cardiac preload and afterload, combined with augmentation of cardiac preload associated with immersion was thought to explain the development of pulmonary oedema.³ We suggest that the simultaneous occurrence of contributing factors is required for the development of pulmonary haemoptysis and oedema associated with immersion: cold induced vasoconstriction, as previously reported,³ or the combination of exercise and fluid overload as in our cases.

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Trends in prescriptions of paracetamol for children

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In 1979 the *BMJ* focused attention on the harmful effects of medicines sweetened with sugar on children's teeth.¹ From 1984 the *British National Formulary* has included a warning, "although liquid preparations are particularly suitable for children, many contain sugar which encourages tooth decay. Sugar-free preparations should be used whenever possible." In 1986 the *British National Formulary* marked preparations which did not contain sucrose, glucose, or fructose as "sugar free." Pharmaceutical companies have responded to professional and market forces and are producing sugar free medicines.² However, availability does not necessarily mean that the medicines will be widely used and recommended.

The most commonly prescribed paediatric medicine is paracetamol. Sugar containing and sugar free generic and brand named versions which have identical therapeutic actions have been available for years. We investigated trends in prescribing by general practitioners in four health districts.

Methods and results

Permission was obtained from the North West Regional Health Authority to view combined district prescribing analysis and cost data for the districts of Oldham, Rochdale, Bury, and Bolton for April to June 1991, 1992, and 1993. The total volume of paracetamol prescribed was determined and the proportions that were sugar free and generic calculated. The χ^2 test was used to determine the differences in proportions between 1991 and 1993.

The table shows the proportions of sugar free and generic paracetamol prescribed in the four districts. In all four districts there was an increase in the proportion of sugar free prescriptions between 1991 and 1993

($P < 0.001$). In Oldham and Bolton the increase was over 10%. In 1991 overall, 29% of paediatric medicines were sugar free (95% confidence interval 17% to 41%). This had risen to 37% (31% to 44%) by 1993. Over the four districts generic prescriptions accounted for 19% (5% to 34%) in 1991 and 24% (16% to 33%) in 1993; fewer than 4% of these were sugar free.

Comment

Paracetamol is an excellent example of a medicine that is commonly prescribed, over 70% of prescriptions being for branded products. Of the 37% of sugar free prescriptions in 1993, most were brand name products. Efforts have been made to encourage generic prescribing, and though a generic sugar free version is available, it is rarely prescribed. This suggests that as generic prescribing becomes more prevalent the use of sugar free paracetamol may decline unless specifically encouraged.

A study of doctors' prescribing habits for children suggested that the main reason for not prescribing sugar free was that doctors had simply not thought about the issue and automatically prescribed whatever they were accustomed to using.³ Others thought that it was not important in relation to all the other sugar intakes children have.

Decayed teeth may seem a minor problem, but a great deal of misery and pain can accompany tooth decay and many young children still require general anaesthesia for extractions. Fluoride in water and toothpaste helps but controlling the diet is also important, as the frequency of sugar consumption overwhelms the protective benefit of fluoride.

The more frequent the sugar intake, the more likelihood there is of decay developing. Young children are often given medicines just before bedtime or during the night. This is particularly damaging to teeth because saliva flow is reduced, buffering of the acids produced by sugar will be compromised, and demineralisation of tooth enamel will be greater, expediting decay.

A simple change to a sugar free medicine would have the same therapeutic effect and yet not pose a risk to children's dental health.

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Aggregated prescribing analysis and cost data for four districts April to June 1991, 1992, and 1993. Results expressed as percentage of sugar free paracetamol, percentage of generic paracetamol, and total number of 100 ml units prescribed

District	1991			1992			1993		
	% Sugar free	% Generic	Total No	% Sugar free	% Generic	Total No	% Sugar free	% Generic	Total No
Oldham	27	28	10 446	40	22	9 460	38	26	10 166
Rochdale	33	7	11 289	36	13	10 105	40	17	10 780
Bury	37	18	6 543	43	24	6 005	41	30	6 397
Bolton	20	24	9 949	29	22	9 023	32	26	10 636
Overall mean (95% confidence interval)	29 (17 to 41)	19 (5 to 34)		36 (27 to 47)	20 (12 to 28)		37 (31 to 44)	24 (16 to 33)	