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Management of childhood diarrhoea by pharmacists and parents: Is Britain lagging behind the Third World?

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Abstract

Objective—To investigate the role of community pharmacists in providing advice and treatment for children with diarrhoea; to investigate mothers' responses to diarrhoea in their children.

Design—Cross sectional questionnaire study of a random selection of community pharmacists and of mothers attending child health clinics. Pharmacists were interviewed and given a questionnaire and a separate group was visited by a researcher posing as a parent; mothers were interviewed at the clinic.

Setting—Newcastle upon Tyne.

Subjects—20 pharmacists were interviewed and visits by a researcher posing as a parent were carried out to 10 different pharmacists; 58 mothers were interviewed.

Main outcome measures—Advice given by pharmacists was contrasted with standard advice on management of diarrhoea in children.

Results—Half the pharmacists interviewed and 70% of pharmacists visited by a researcher posing as a parent recommended inappropriate treatment of childhood diarrhoea (such as antidiarrhoeal drugs and withholding breast milk), and only 30% at interview stated that they would ask for the age of the child. Mothers' knowledge of home treatment was inadequate. All pharmacists in the posed visits recommended a purchased treatment.

Conclusion—Pharmacists are widely used by parents for consultation for children's ailments but their advice is not always appropriate; hence they should be given more consistent training in recognising and managing clinical problems. Medical advice on management of diarrhoea is also inconsistent and should be modified to conform to the guidelines of the World Health Organisation.

Introduction

Since the late 1970s there has been considerable professional debate about the traditional role of the pharmacist in providing advice on symptoms and the significance of this role within primary health care.¹⁻³ In 1983 a campaign called "Ask your Pharmacist" was launched by the National Pharmaceutical Association with the support of the Pharmaceutical Society of Great Britain. The general public is now being encouraged to consult the pharmacist about symptoms, and it is therefore essential that the advice given is safe, effective, and suited to the patient's particular condition.⁴

Whereas in the 1960s much of the pharmacist's work was technical (compounding drugs, etc) the role of the pharmacist today often includes giving advice about general medical care, and many pharmacists believe that this aspect will gradually increase.

In the United Kingdom drugs are obtained primarily through prescription by hospital doctors and general practitioners and by over the counter sales at local pharmacies and supermarkets. There are three classes of products under the Medicines Act 1968:⁵ (a) general sale list medicine (for example, oral rehydration salts, paracetamol) medicines that can be bought in supermarkets or over the counter in pharmacies at any time without a pharmacist on the premises; (b) pharmacy medicine (for example, loperamide) medicines that can be obtained over the counter with no prescription, but a pharmacist must supervise the sale; (c) prescription only medicine (for example, ampicillin).

Recognising the pharmacists' role in prescribing the Pharmaceutical Society has published advice on questions that should be asked when a patient presents at a pharmacy.⁶ A study on symptoms in adults, however, found the advice given by pharmacists to be less than adequate.⁴ In response there have been moves to provide more extensive training for pharmacy students on how to respond to symptoms, including those of children.

Little research has been done on advice given by pharmacists about complaints in children. A study carried out in Dundee in 1981 found that the pharmacists' advice varied considerably.⁷ Little attempt was made to elicit important symptoms, and the study concluded that the advice that pharmacists are giving regarding children is not generally appropriate, particularly for diarrhoea.

In 1981 Morrell found that diarrhoea was one of the six commonest symptoms in children under 16 years for which consultation was sought.² Discussion with parents revealed the great anxiety that these symptoms may sometimes provoke and the enormous difficulty that some parents experience in deciding when to seek the general practitioner's care.

It has been our observation that the usual management of diarrhoea, both in hospitals and in the community in Britain, is different from that recommended by the World Health Organisation for developing countries.⁸ Our survey was designed to find out what mothers and pharmacists regard as important in treating diarrhoea in the United Kingdom; it focuses particularly on pharmacists' management of diarrhoea in children and also investigates mothers' management of diarrhoea at home.

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Methods

The study was a cross sectional descriptive survey of two populations living or working in Newcastle upon Tyne in May 1989: 66 pharmacists and the mothers attending three well baby clinics in varied socio-economic areas of the city.

Interviews with pharmacists were the main part of the study. A stratified random sample of 20 was chosen using the postal districts for grouping to ensure that all areas of the city were equally represented. Each pharmacy was visited; if an interview was refused (four cases) an alternative was chosen randomly from the same group.

Each pharmacist was given two questionnaires. The first, an interview by the researcher, covered pharmacists' experience of mothers presenting to them with common complaints in their children. The questions were of an open format but specific answers were looked for. For example, the pharmacists were asked what inquiries they would make to the mother of a child with diarrhoea and the answers compared with a checklist that included answers such as age of child, duration of illness, and stool character. Questions were also asked about their recommendations for the management of diarrhoea in children. Secondly, a self completed questionnaire covered the pharmacists' opinions on their role in offering advice and treatment for children (up to 4 years) and on certain specific aspects of the treatment of diarrhoea, namely the role of antibiotics and breast feeding. Both these questionnaires had been tested in a pilot study and minor modifications made.

"Staged" visits to pharmacies took place before the other parts of the survey and were intended to give a preliminary view of the situation rather than to give comparative data. The 10 pharmacies visited were chosen at random from those remaining after the study sample had been selected, thus minimising the chance of an interviewer being recognised.

A female investigator entered the pharmacy and asked for help with her baby who had diarrhoea. The request was presented in the same way at every pharmacy. Answers had been agreed in advance to anticipated questions—for example, age of child, 10 months; duration of illness, 12 hours. The questions and advice were noted, and any suggested treatment was purchased.

All mothers attending child health clinics during one session were interviewed, giving a total of 58. All questions were related to the child brought to the clinic or the oldest under 5 if more than one had been brought. This restricted the age range to 0-4 years.

Mothers were asked about their use of pharmacies and the advice obtained. Specific questions were asked about their management of diarrhoea at home and their use of oral rehydration salts. We used the term dioralyte to cover all forms of commercial oral rehydration salts, and this was carefully explained to mothers.

Results

Twenty pharmacists (eight women, 12 men) were interviewed; their length of time in practice ranged from six months to 35 years. Where appropriate the results of the questionnaires and staged visits are given together.

Fifty eight mothers were interviewed. The children referred to in this study ranged in age from birth to 4 years: 14 (24%) were under 6 months, 32 (55%) were 6-24 months, and 12 (21%) were 2-4 years.

ADVICE SOUGHT FROM PHARMACISTS

Of the mothers 47 (81%) had sought advice from pharmacists at some time for the index child, of whom

34 (72%) received treatment only, nine (19%) were given advice in addition to treatment, and four (9%) were referred to their general practitioner. None had been given advice only. Table I shows the reasons for consulting pharmacists. Diarrhoea represented 30% of consultations for pharmacists and 12% for mothers.

MANAGEMENT OF DIARRHOEA

Table II shows the diagnostic questions put by pharmacists to mothers of children with diarrhoea. The most common question at interview was about duration; during the visit by the "mother" it was the age of the child.

Table III shows the medical treatment suggested by pharmacists and used by mothers. In 10 (50%) interviews with pharmacists and three (30%) staged visits the pharmacist recommended the appropriate treatment: using oral rehydration salts alone. In all other responses another antidiarrhoeal agent was suggested in addition to or instead of oral rehydration salts. The price of recommended treatment ranged from 50p to £2.00.

Only 14 (24%) of mothers said they would use specific medical treatment for diarrhoea at home. The rest used general measures only. Although 39 (67%) of mothers had heard of dioralyte or other oral rehydration salts, only 8 (21%) of these mothers said they would use it if their child had diarrhoea.

Table IV shows the recommendations for diet during childhood diarrhoea given by pharmacists and mothers. Stopping food or milk, or both, was the most common recommendation. Eleven mothers (19%) stated they would seek medical advice rather than manage the child by themselves.

SELF ADMINISTERED QUESTIONNAIRE

Table V shows the results of the questionnaire filled

TABLE I—Conditions for which mothers most commonly consult pharmacists. Figures are numbers (percentages)

Condition	Mothers (n=58)	Pharmacists (n=20)
Diarrhoea	7 (12)	6 (30)
Cough	19 (33)	5 (23)
Cold	7 (12)	1 (5)
Teething	5 (9)	2 (12)
Skin	4 (7)	2 (12)
Colic	3 (5)	
Others	13 (22)	4 (18)

TABLE II—Management of diarrhoea: questions asked by pharmacists

Question	No (%) (95% confidence interval) asking question	
	Interview (n=20)	"Staged" visit (n=10)
Duration	14 (70 (50 to 90))	2 (20 (0 to 45))
Age of child	6 (30 (10 to 50))	7 (70 (40 to 100))
Foods taken	8 (40 (20 to 60))	
Stool character	9 (45 (25 to 65))	
Medication	6 (30 (10 to 50))	
Appetite	5 (25 (5 to 45))	
Associated illness		1 (10 (0 to 30))
No questions at all		2 (20 (0 to 45))
Mean (range) No of questions	2.8 (1.0-5.0)	1.2 (0.2-0)

TABLE III—Treatment suggested by pharmacists and used by mothers. Values are numbers (percentage (95% confidence intervals))

Treatment	Pharmacists		
	Interview (n=20)	"Staged" visit (n=10)	Mothers (n=14)
Appropriate:			
Oral rehydration salts only	10 (50 (30 to 70))	3 (30 (0 to 60))	9 (64 (40 to 90))
Inappropriate:			
Oral rehydration salts and kaolin	8 (40 (20 to 60))		
Kaolin only	1 (5 (0 to 15))	5 (50 (20 to 80))	1 (7 (0 to 20))
Kaolin and morphine		1 (10 (0 to 30))	3 (21 (0 to 40))
Loperamide	1 (5 (0 to 15))	1 (10 (0 to 30))	
Other			1 (7 (0 to 20))

TABLE IV—Dietary management of children with diarrhoea by pharmacists and mothers

Recommendation	No (%) responding	
	Pharmacists (n=20)	Mothers (n=58)
No change	1 (5)	
Stop food	10 (50)	25 (43)
Stop milk	10 (50)	
Change diet	7 (35)	
Increase fluids	10 (50)	8 (14)
		20 (34)

TABLE V—Results of self administered questionnaire

Questions	No of pharmacists (n=20)			
	Strongly agree	Agree	Disagree	Strongly disagree
Mothers should consult a pharmacist before a doctor if their child has diarrhoea or any other common ailment	1	12	7	
Mothers should visit their general practitioner first before going to the pharmacy if their child has diarrhoea or other common ailment	1	1	18	
Children with diarrhoea need to be treated with antibiotics			15	5
Pharmacists should sit down with mothers and give advice on how to manage a child with diarrhoea	4	14	2	
Recommending treatment should not be part of a pharmacist's duties		1	9	10
Pharmacists should have more clinical training in dealing with common ailments in children, including diarrhoea	8	10	2	
Mothers should stop breast feeding their babies when they have diarrhoea	1	12	6	1

out by the pharmacists. These results confirmed that most pharmacists considered that parents should visit them for advice before seeing the doctor, that they should give advice on management of diarrhoea, and that they desire further training on this topic. However, 65% asserted that mothers should discontinue breast feeding a baby with diarrhoea.

Discussion

This study confirms previous findings that mothers make extensive use of pharmacies when seeking advice and treatment for minor illnesses in their children.^{13 7 9} Since 1986, when the pharmacy health care scheme was launched, pharmacists have been actively encouraged to provide advice as well as treatment for their customers.^{10 11} It is possible that the implementation of the recent change in general practitioners' contracts may lead to longer surgery waiting times and therefore increased use of pharmacists.

If pharmacists are to be active in giving advice then it is important that the advice is of good quality. We found that the pharmacists in general were very helpful and friendly, and often knew their customers well, but less than a third of the pharmacists interviewed stated that they would ask the age of the child and less than half would ask for a more detailed description of the illness. In our staged visits to pharmacies we found that only a fifth asked for the duration of the illness and none asked for a more detailed description. None asked about signs of dehydration. Unless the answers to such important questions are known it is difficult to recommend appropriate treatment.

Most pharmacists interviewed thought that giving advice was a normal part of their work; some, however, thought that it is too big a responsibility, and others mentioned the fact that they are not paid for this service, although doctors are. Many pharmacists found giving proper advice difficult because of lack of time and the public nature of their shops. Many of the pharmacists had had some clinical training but most thought that more was required.

Our findings about the management of diarrhoea were of some concern. It is generally accepted that the correct treatment for diarrhoea is oral rehydration, either with fluids available in the home or by use

of an oral rehydration salt solution (for example, dioralyte).^{12 14} Treatment of symptoms is unnecessary. In our survey, however, half of the pharmacists interviewed and nearly three quarters in staged visits recommended inappropriate treatment. Nearly half of the mothers who used medicines at home used inappropriate treatment.

The more detailed questioning of mothers about oral rehydration salts revealed that although two thirds knew about oral rehydration salts, only a fifth would use them. Non-users gave various reasons for non-use, particularly that the child would not drink the mixture. A possible reason for this is that oral rehydration salts are being used for children with diarrhoea too mild to make them thirsty.

It was interesting that all the pharmacists in the staged visits recommended a purchased treatment even though they had not asked any questions to find out whether any was necessary. These treatments were often expensive.

Another area of concern to us was the dietary recommendations imposed upon children when they have diarrhoea. Half the pharmacists suggested stopping all milk and half suggested stopping food. Two thirds believed that it was necessary to stop breast feeding during diarrhoea. Almost half of the mothers said that they would withhold food from their children during diarrhoea regardless of age. All these practices are contradictory to the WHO recommendation that milk feeding, particularly breast feeding, should continue during diarrhoea. WHO also recommended that feeding of solids should continue if the child wishes to eat.⁸

Many general practitioners and even paediatricians in Britain seem to believe that starvation for at least 24 hours is an important part of the management of diarrhoea. Presumably mothers and pharmacists have derived their approach from that of the medical practitioners.^{12 14 15} There is no reason why the medical profession in Britain, and thus mothers and pharmacists, should not follow the WHO guidelines for the management of diarrhoea. It is particularly important that breast feeding mothers are not advised to stop when their child has diarrhoea.

This study was small and so it is open to the criticism that it is not representative of the situation either in Newcastle or in Britain as a whole. Our experience of medical advice and practice in the United Kingdom, however, would suggest that the findings of this study are indeed a reflection of the way diarrhoea is managed throughout the country and that further larger studies, which should include doctors, are indicated.

Four recommendations arise from this study. Firstly, pharmacists should have more training in management of clinical problems, particularly in what questions to ask during diagnosis. Secondly, the authorities should give thought to the circumstances in which pharmacists give advice to customers, in terms of provision of more space, financial support, and time. Thirdly, the treatment recommended for diarrhoea in children should be reviewed and the use of kaolin and other antidiarrhoeal drugs discouraged.

Finally, the medical profession in the United Kingdom should review its dietary recommendations for childhood diarrhoea so that feeding is continued during the illness. It is particularly important that the attitude to breast feeding during diarrhoea is reviewed, and that this information is promulgated to both pharmacies and mothers.

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Incidence of insulin dependent diabetes in children aged under 15 years in the British Isles during 1988

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Abstract

Objective—To ascertain the annual incidence rate of insulin dependent diabetes diagnosed in children under the age of 15 years in the British Isles during 1988, and to compare the results with an earlier study carried out in 1973-4.

Design—Active monthly reporting of cases by consultant paediatricians, with additional input from diabetologists and all specialist diabetes nurses and health visitors.

Setting—British Isles (England, Wales, Scotland, Northern Ireland, Republic of Ireland) with a total population at risk of 11 819 000 children.

Patients—All children diagnosed under the age of 15 years with primary insulin dependent diabetes from 1 January to 31 December 1988 and resident in the British Isles at diagnosis.

Main outcome measures—National incidence rate of insulin dependent diabetes; differences in incidence rates between regions and between three age groups: 4 and under, 5-9, and 10-14 year olds.

Results—1600 children (837 boys and 763 girls) had a confirmed diagnosis of insulin dependent diabetes, giving a national incidence rate of 13.5/100 000/year (95% confidence interval 12.9 to 14.2/100 000/year). This was considerably higher than the incidence rate of 7.7/100 000/year in children under the age of 16 years reported in the British Diabetic Association's study of 1973-4. The age-sex adjusted rates varied between regions, ranging from 6.8/100 000/year (Republic of Ireland) to 19.8/100 000/year (Scotland). There were considerable differences in the numbers of cases diagnosed each month, with the 10-14 year age group showing the most seasonal variation. A quarter of the children (404/1600) were under 5 years old. Case ascertainment was estimated as 90%.

Conclusions—Insulin dependent diabetes in the British Isles does not seem to occur uniformly over time or geographical area. Even allowing for differences in ascertainment between the 1973-4 and 1988 studies, there seems to have been an increase in the incidence rate of insulin dependent diabetes in children under the age of 15 years during the 15 year time period. If diabetes is becoming more common in this age group, possibly by developing earlier in susceptible children, this would be a matter of considerable public health concern.

Introduction

Internationally there are considerable differences in the reported incidence rates of insulin dependent

diabetes in children, the highest being in Finland (28.6/100 000/year)¹ and the lowest in Japan (1.7/100 000/year).² The size of these differences suggests the influence of environmental factors over and above any differences in genetic predisposition.

There has been no study on the incidence of insulin dependent diabetes in the British Isles since data from the British Diabetic Association register relating to 1973 and 1974 were published.³ This gave a mean incidence rate of 7.7/100 000/year for children under the age of 16 years at diagnosis. Subsequently, reports from Scotland⁴ and Leicestershire⁶ have suggested that the incidence rate in children in those areas has been increasing over the past 30-40 years. We therefore studied the incidence of insulin dependent diabetes in children under 15 years of age in the British Isles.

Methods

Ethical approval for this national study was obtained from the BMA and the Bristol and Weston District Health Authority. The study protocol was also scrutinised and found to be acceptable by the ethics advisory committee of the British Paediatric Association.

New cases of children with insulin dependent diabetes diagnosed from 1 January to 31 December 1988 who received insulin treatment before their 16th birthday were reported by consultant paediatricians to the British Paediatric Surveillance Unit in London. This is an active reporting system that involves all paediatricians in the surveillance of certain serious childhood diseases.⁷ A report card containing a list of conditions is sent monthly to the 850 consultant paediatrician members of the British Paediatric Association and other categories of member where appropriate. The respondents are asked to report cases of conditions named on the card that they have seen in the preceding month or to check a "nil-return" box. Diabetes mellitus was included on the card for 12 months (February 1988 to January 1989). Most children were admitted to hospital at diagnosis, but even if treatment for some children had been started at home a hospital based consultant paediatrician was responsible for their care.

When a case was reported to the surveillance unit the information was sent to the study administrator (MAM) in Bristol. Each reporting paediatrician was asked to confirm that case, give some additional details, and provide permission to approach firstly the general practitioner and then the parents of each child with newly diagnosed diabetes with a short questionnaire. (The results from the questionnaire data will be

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