

Table 1—Vitamin K status of cases and controls assessed according to what was recorded in hospital notes and what was imputed from hospital policy

	Cases	Controls	Odds ratio (95% confidence interval)†	
			Unadjusted	Adjusted‡
Acute lymphoblastic leukaemia	109	218		
Obstetric/neonatal notes:				
No written record of vitamin K	32	70		
Recorded as not given	1	2		
Given orally	4	4		
Given intramuscularly	72	142	1.1 (0.6 to 2.0)	1.0 (0.5 to 1.9)
Imputed from hospital policy*:				
Not given	20	41		
Oral preparation	4	6		
Intramuscular	85	171	0.9 (0.4 to 2.2)	0.8 (0.3 to 2.0)
All leukaemias	132	264		
Obstetric/neonatal notes:				
No written record of vitamin K	41	93		
Recorded as not given	1	2		
Given orally	4	6		
Given intramuscularly	86	163	1.3 (0.7 to 2.3)	1.2 (0.7 to 2.3)
Imputed from hospital policy*:				
Not given	28	60		
Oral preparation	4	8		
Intramuscular	100	196	1.2 (0.6 to 2.6)	1.1 (0.5 to 2.6)

*A yes or no recorded in obstetric notes took priority over imputed hospital policy.

†Intramuscular vitamin K versus all other possibilities combined. Odds ratios were estimated using informative matched sets and conditional logistic regression.

‡Adjusted for admission to special care nursery and mode of delivery.

others,^{1,4} we present odds ratios for intramuscular vitamin K versus all other possibilities combined (none/oral/no record of vitamin K). To take account of potential confounding, we adjusted odds ratios for delivery type and admission to a special care nursery, and these are listed alongside their unadjusted counterparts.

The adjusted odds ratio among those whose medical notes indicated they had received intramuscular vitamin K was 1.0 (95% confidence interval 0.5 to 1.9, based on 45 informative sets) for acute lymphoblastic leukaemia and 1.2 (0.7 to 2.3, 52 informative sets) for all leukaemias (table 1). Imputation resulted in lower risk estimates, but as the calculation was based on fewer informative case-control sets the confidence intervals are wider.

Comment

The retrospective assessment of whether a baby received vitamin K, and by what route, is not straightforward. Information about vitamin K may be found in several places: the mother's obstetric notes, the delivery register, neonatal notes, and nursing cardex. Additionally, hospital policy on vitamin K varies from routine (oral or intramuscular) to a more selective regimen of intramuscular vitamin K for high risk neonates. When vitamin K is given, details are generally recorded at the time of administration, although route is not always stated. Because vitamin K administration cannot always be confirmed from the records available some researchers have imputed information from hospital policy.¹⁻⁴ Imputation can be problematic: historical records are rarely available, and current staff are sometimes ill informed about past policies; and on an individual basis it is an act of faith to assume that where no written record is found hospital policy prevailed. For this reason we presented our data in two ways. With either method, our findings do not support the suggestion that the risk of childhood leukaemia is increased in neonates who receive intramuscular vitamin K.

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Medical practitioners' knowledge of dysentery treatment in Bangladesh

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The irrational use of drugs is common in Bangladesh.^{1 2} To assess medical practitioners' knowledge of treatment for dysentery and whether their knowledge is influenced by their training, we interviewed four groups of medical practitioners in Bangladesh and compared the treatment that they recommended with what is advocated by the World Health Organisation.

Subjects, methods, and results

We conducted our study in the capital, Dhaka, and in rural Matlab. In Dhaka we interviewed 136 doctors (46 with postgraduate training and 90 without), 87 drug dispensers, and 50 medical students, and in Matlab we interviewed 150 drug dispensers. All participants were selected randomly, except for the medical students, who were recruited opportunistically.

We presented a simple case to each person: "A 2 year old child has had bloody diarrhoea for three days. What treatment would you recommend?" The correct answer is use of oral rehydration solution and a single antibacterial drug appropriate for treating shigellosis, as recommended by the WHO.^{3 4} Appropriate antibacterial drugs are ampicillin, co-trimoxazole, nalidixic acid, and pivmecillinam.

Less than half of the people in each of the four groups recommended the correct treatment (table 1). Fewer drug dispensers recommended correct treatment (8% of urban and 11% of rural dispensers) than did doctors with postgraduate training (44%), medical students (46%), and doctors without postgraduate training (47%). The commonest incorrect recommendations were the use of multiple antibiotics, use of an inappropriate antibiotic, and failing to use oral rehydration solution. Of the 423 people interviewed, 398 recommended the use of at least one antibiotic, and 155 recommended two or more antibiotics. The most commonly recommended combination of antibacterial drugs was metronidazole with ampicillin, co-trimoxazole, or nalidixic acid. Drug dispensers in Matlab were more likely to recommend use of multiple antibiotics or use of metronidazole or furazolidone (two drugs not indicated for treating dysentery in children) and were less likely to recommend oral rehydration solution than were the other groups of medical practitioners.

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Table 1—Treatment for childhood dysentery recommended by different groups of medical practitioners in Bangladesh. Values are numbers (percentage) of practitioners

Treatment recommended	Doctors		Drug dispensers		
	With postgraduate training (n=46)	Without postgraduate training (n=90)	Medical students (n=50)	In capital city, Dhaka (n=87)	In rural area, Matlab (n=150)
Nalidixic acid	17 (37.0)	33 (36.7)*	6 (12.0)	32 (36.8)*	17 (11.3)*
Metronidazole	5 (10.9)*	23 (25.6)	13 (26.0)	32 (36.8)	71 (47.3)*
Ampicillin	8 (17.4)	25 (27.8)	19 (38.0)	12 (13.8)*	72 (48.0)*
Co-trimoxazole	10 (21.7)	24 (26.7)	7 (14.0)	11 (12.6)	45 (30.0)
Furazolidone	6 (13.0)	5 (5.6)*	0*	18 (20.7)	42 (28.0)*
Pivmecillinam	3 (6.5)	2 (2.2)	1 (2.0)	0	0
Oral rehydration solution	27 (58.7)	61 (67.8)*	40 (80.0)*	41 (47.1)	63 (42.0)*
Correct treatment	20 (43.5)*	42 (46.7)*	23 (46.0)*	7 (8.0)*	16 (10.7)*
Incorrect treatment:					
Incorrect No of antibiotics	7 (15.2)*	25 (27.8)*	11 (22.0)*	41 (47.1)	96 (64.0)*
Incorrect single antibiotic	6 (13.0)	6 (6.7)	10 (20.0)	23 (26.4)*	18 (12.0)
Correct single antibiotic but no oral rehydration solution	13 (28.3)	17 (18.9)	6 (12.0)	16 (18.4)	20 (13.3)

* P<0.01 for χ^2 test or Fisher's exact test comparing one category of practitioners with the four other categories combined.

Comment

Because we examined people's knowledge rather than actual prescribing, factors such as economic incentives or patient demand were less likely to have affected recommendations for treatment. It is therefore disturbing that three quarters of the medical practitioners surveyed failed to manage the hypothetical patient according to standard guidelines. Incorrect treatment was most common among pharmacy staff, of whom only one in 10 advocated the correct treatment.

The use of drugs no longer active against *Shigella* was common. When we conducted our survey 58% of shigella isolates in Bangladesh were resistant to ampicillin and 44% were resistant to co-trimoxazole, though most were susceptible to nalidixic acid.⁵ For this evaluation, we considered ampicillin and co-trimoxazole to be appropriate treatments as they were among the drugs recommended by the WHO for treating dysentery.⁴ If ampicillin and co-trimoxazole were considered to be inappropriate only 8% of all the medical practitioners recommended correct treatment. We are uncertain why metronidazole and furazolidone were still so popular despite both drugs being ineffective against bacillary dysentery and abundant evidence that amoebiasis is an extremely uncommon cause of dysentery in children.³

Private pharmacies are the predominant source of acute medical care in Bangladesh and many other poor countries.² If treatment of common illnesses such as dysentery is to improve, drug dispensers' knowledge of their management and knowledge of common pathogens' susceptibility to antibiotics must be improved. Currently, drug companies are the only organisations in

Bangladesh to provide such information to pharmacists, and the information supplied is often not consonant with recommendations from public health bodies.

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ONE HUNDRED YEARS AGO

THE COST OF A MEDICAL EDUCATION.

WITHIN the next month a large number of young men will have to come to a final decision as to the career they intend to adopt, and there is no doubt that in many homes the question is being seriously discussed, not merely in regard to inclination but also in regard to ways and means. Time was when entry into the medical profession was easier than it is now. Examinations were less severe, the curriculum was shorter, and it was by no means impossible for an industrious man, by taking up his residence in a town in which there was a medical

school, and grubbing along as an assistant to a doctor or even to a chemist, to attend his lectures and work his way up at small expense. If he could but provide the fees for lectures and examinations, it was possible by industry alone to find a way into the profession. Such times are, we fancy, quite gone by, and unless a young man has either such capital or friends as to be assured of an income for at least five years he has but little chance of obtaining a qualification.

(*BMJ* 1896;ii:546.)