

Acute illness in infants: a general practice study

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SUMMARY. The character and frequency of acute illness in infants presenting to a general practice over a 16-week period was studied. Symptoms were classified as 'major' or 'minor' in accordance with the definitions used in a multi-centre study in infant mortality.

Of the 126 consultations reviewed, 106 (84 per cent) included at least one major symptom. None of the illnesses resulted in hospital admission or had a fatal outcome. It was concluded that this classification of symptoms into 'major' and 'minor' categories is not sufficiently discriminating to use in general practice. More specific definitions are required.

Introduction

In an attempt to find a new approach to the management of acute illness in infants, Stanton and colleagues analysed illnesses in terms of 'major' and 'minor' symptoms. They defined major symptoms as those requiring a medical opinion on the same day, and continuing close supervision; these included fever, wheezing, altered breathing, cough, diarrhoea, continual vomiting, missed feeds, unusual drowsiness, irritability and an altered cry. Minor symptoms were defined as those not needing a medical opinion on the same day; these included colds, snuffles and sneezing, a single bout of vomiting, loose motion or missed feed, and rash (excluding nappy rash).¹ This preliminary report on the Department of Health and Social Security (DHSS) multicentre study of infant mortality noted that, of the 145 sudden and unexpected deaths at home of infants under two years of age that were investigated, in 48 per cent of cases major symptoms had been present in the week before death. In a control group of apparently healthy infants, 12 per cent had experienced major symptoms of acute illness. The authors concluded that deaths might be prevented if doctors and parents were

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more aware of the importance of major symptoms and if doctors were more rigorous in their surveillance of such cases. In subsequent correspondence the study was criticized for not indicating how common major symptoms are in general practice and that most of these symptoms are dealt with 'almost daily'.² Other criticisms were: there was no proof that increased surveillance would be beneficial;³ acceptance of the recommendations would cause a 'wave of alarm among parents that would swamp general practice';⁴ the controls were selected in a dubious way and there was a lack of clarity in defining 'major symptoms'.⁵

A second study by the same workers, using the same definitions of major and minor symptoms, analysed the acute illnesses of 150 infants admitted to hospital. All these infants had exhibited major symptoms before admission. Again the authors noted the lack of surveillance by family doctors and suggested that follow-up should be initiated by the doctor. They argued that daily assessment by a professionally qualified person should be normal practice when a child has major symptoms and they added that further research would be needed to establish whether this would result in many extra consultations or admissions.⁶ This study was criticized for failing to look at illnesses wholly dealt with in general practice and for not producing any evidence that the suggested rigorous follow-up would be beneficial.⁷

The aim of the present study was to investigate the symptomatology, management and outcome of acute illness in infants under one year of age presenting to one group of general practitioners. The specific objective was to determine whether the crude division of symptoms into major and minor categories, as used by Stanton and colleagues, is helpful to general practitioners.

Method

The study was conducted in a busy inner city training practice in the north of England, operating from two surgeries. There were five partners—four full-time and one part-time—for a total practice population of 10,500 patients. An age-sex register was not available.

The doctors were asked to record all patient-initiated consultations about infants under one year of age, excluding contacts for preventive purposes (such as immunization). The study ran for 16 weeks from 1 September to 21 December 1980. The parent or guardian of the infant was interviewed at

home one week after the consultation or as soon after that time as possible. Enquiry was made about the symptoms leading to the consultation and the management and outcome of the illness. Classification of symptoms into major and minor categories was the same as that described above.^{1,6}

The first part of the interview questionnaire was concerned with the infant's family and social situation. The second part was an enquiry into the symptomatology of the recent illness. The parent was asked what symptoms had led him or her to seek medical advice and how long these had been present. Those parents who gave positive answers to the questions about 'irritability', 'altered cry' and 'diarrhoea' were asked for detailed descriptions of the symptoms in an attempt to discover the meaning that parents attached to these terms. The final part of the questionnaire was about the consultation itself—where and when it had taken place, what the doctor had done, what advice had been given, whether admission to hospital was arranged, what arrangements had been made for follow-up, and whether the parent had recalled the doctor for the same illness.

After the reference period, the records for all infants under one year of age during the study period were inspected. The total number of consultations was noted, although it was not possible to tell how many of them fulfilled the criteria for entrance to the study.

Results

Referral of infants to the study

The 136 consultations reported by the doctors involved 83 children. Ten of the parents could not be contacted, so 126 consultations were analysed, involving 80 children.

The records revealed that 265 consultations concerning infants under one year of age had occurred during the study period. As mentioned above, it is not known how many of these were eligible for entry to the study. This point is discussed below.

Social profile of the parents

Of the 80 infants in the study, 16 (20 per cent) were living with a single parent. Thirteen mothers (16.5 per cent) were under 20 years of age. In 45 cases (56 per cent), the maternal grandmother lived with the family or within one mile of the family. There was no telephone in 55 homes (69 per cent). Of the 73 fathers whose employment status was known, 37 (42 per cent) were unemployed; only three mothers were in employment. All but six of the families were in a manual-work social class.

In summary, the profile is one of an economically and socially deprived community, but one which is closely knit with good family support.

Symptoms

The 126 consultations covered a total of 570 symptoms, 345 of which (60 per cent) were classified as 'major'. The nature, frequency and duration of these symptoms are shown in Table 1. One or more major symptoms were involved in 106 of these consultations (84 per cent), and three or more major symptoms in 66 (52 per cent) consultations (Table 2). Certain symptoms were more

likely to be mentioned spontaneously when parents were asked about the reason for seeking medical help; other symptoms were more likely to be acknowledged only after direct questioning. For instance, the minor symptoms of 'snuffles' was mentioned spontaneously in 68 per cent of those cases in which it was reported, but the major symptom of 'missing more than one feed' was mentioned spontaneously in only 36 per cent of those cases in which it was reported (Table 3).

The relationship between the presence of major symptoms and family and social factors was analysed. No significant relationships were found between the

Table 1. Nature and frequency of symptoms.

Symptoms	Number and percentage of consultations in which symptom was present (n=126)	Mean duration of symptoms (days)
Irritability*	82 (65)	4.4
Snuffles	62 (49)	4.3
Fever*	57 (45)	3.1
Cough*	54 (43)	4.8
Altered cry*	32 (25)	3.8
Vomit (once)	31 (25)	NA
Missed feed (once)	31 (25)	NA
Missed feed* (more than once)	28 (22)	3.1
Vomit* (more than once)	28 (22)	2.3
Loose motion (once)	24 (29)	NA
Diarrhoea*	22 (17)	4.3
Possetting	22 (17)	NA†
Drowsiness*	17 (13)	2.1
Nappy rash	15 (12)	4.6
Wheezing*	15 (12)	3.0
Rash	13 (10)	2.8
Altered breathing*	8 (6)	2.0
Other	29 (23)	8.2
Total	570	

* Major symptom.

† Almost all infants with possetting were reported to have had this symptom all their lives, and the duration of symptoms has therefore been omitted.

NA, not applicable.

Table 2. Number of major symptoms involved.

Number of major symptoms	Number and percentage of consultants
None	20 (16)
One	17 (13)
Two	23 (18)
Three	26 (21)
Four	17 (13)
Five	9 (7)
Six	10 (8)
Seven	3 (2)
Eight	1 (1)
Total	126 (100)

Table 3. Percentage of reported symptoms mentioned spontaneously.

Symptom	Percentage of reports
Altered breathing*	88
Cough*	83
Diarrhoea*	82
Rash	80
Vomit* (more than once)	75
Loose motion (once)	75
Vomit (once)	70
Snuffles	68
Wheezing*	67
Nappy rash	67
Irritability*	43
Missed feed* (more than once)	36
Missed feed (once)	35
Fever*	19
Altered cry*	19
Drowsiness*	18
Possetting	9
Other	23

* Major symptom.

reported presence of a major symptom at a consultation and maternal age, number of siblings, social class, unemployment, single parent family or proximity of maternal grandmother.

For the symptoms 'irritability', 'altered cry' and 'diarrhoea', parents were asked to describe in more detail what they meant in ascribing this symptom to their child. In the 82 consultations which included the major symptom 'irritability', the mothers described 15 different symptoms; the three commonest were 'crying' (25 per cent), 'would not sleep' (15 per cent) and 'would not settle' (13 per cent). Similarly, in the 32 consultations in which the major symptom of 'altered cry' was present, 10 different types of description were given, the most frequent of which were 'screaming/screeching' (37 per cent), 'hoarse/croaking' (20 per cent) and 'as though in pain' (14 per cent). 'Diarrhoea' was reported in 22 consultations but five different descriptions of stool consistency were given, ranging from 'soft' to 'watery', and the reports of frequency ranged from two to 10 times daily.

Management

A prescription was given in 81 per cent of consultations. For 51 per cent of consultations, parents recalled that the doctor gave advice, but there was no recollection of advice in the remainder. Follow-up arrangements reported by parents were of three types. In the first type (comprising 13 per cent of consultations) the doctor made a definite arrangement for further consultation. In the second (47 per cent of consultations), the doctor asked the parents to seek a further consultation if they were worried. In the third type (40 per cent of consulta-

Table 4. Relationship between receipt of a prescription and report of advice.

	Prescription given	Prescription not given	Total
	Number of consultations (%)	Number of consultations (%)	
Advice reported	47 (46.1)	17 (70.8)	64 (50.8)
No advice reported	55 (53.9)	7 (29.2)	62 (49.2)
Total	102 (100)	24 (100)	126 (100)

$\chi^2 = 3.82$ (using Yates's correction); $df = 1$, $P > 0.05$ (not significant).

Table 5. Relationship between recall of doctor and presence of major symptom in 110 cases for whom no definite follow-up arrangement was made.

	Recall of doctor	No recall of doctor	Total
	Number of consultations (%)	Number of consultations (%)	
Major symptom present	18 (100)	75 (81.5)	93
No major symptom present	0 (0)	17 (18.5)	17
Total	18 (100)	92 (100)	110

$\chi^2 = 2.68$ (using Yates's correction); $df = 1$, $P > 0.05$ (not significant).

tions) the parents could not recollect follow-up being mentioned. The presence of major symptoms was not significantly related to the issue of a prescription nor to the giving of advice, nor to any differences in follow-up arrangements. It was found, however, that those parents who were given a prescription were less likely to report receiving any advice, although this just failed to reach a significance at the 5 per cent level using the χ^2 test with Yates's continuity correction (Table 4).

Outcome

None of the 126 cases studied resulted in death or a hospital admission. The only other outcome variable measured was whether, if no definite arrangements for follow-up had been made, the doctor was recalled by the parent during the illness. It was found that the doctor was recalled in only 18 (16 per cent) of the 110 cases for whom no follow-up consultation was arranged. All of these cases had involved at least one major symptom (Table 5). Although the numbers do not reach statistical significance, the absence of a major symptom tended to predict a more favourable outcome in that parents did not feel a need to recall the doctor. When recall of the

doctor was compared with the individual major symptoms, the presence or absence of 'irritability' showed the closest relationship.

Discussion

Symptomatology

The main problem confronting the general practitioner in a consultation about an acutely ill infant is to identify, from the large number of benign and self-limiting illnesses, those which require intensive management. It was to address this problem that the concept of major and minor symptoms was developed by Stanton and colleagues.^{1,6} In the present study, however, 84 per cent of consultations contained at least one major symptom. There was also no significant relationship between the reported presence of a major symptom and the management of the illness, as measured by the issue of a prescription or by arrangements for follow-up.

It was noticeable that the parents' perception of which symptoms were important, as judged by whether they were mentioned spontaneously or when prompted by direct questioning, was at variance with the major-minor classification. It was also found that there was a wide variation in what parents meant by terms such as 'irritable', 'altered cry' and 'diarrhoea'. Professionals are also likely to differ in their interpretations of such terms, adding to the difficulty of assessing the seriousness of a case.

The findings suggest that major symptoms, as currently defined, are too prevalent in general practice to be in themselves useful predictors of a serious outcome. If the case for a major-minor classification is to be pursued, then clearer definitions of the items will be required. This would be only a first step, since the essence of a successful consultation is that both doctor and parent perceive important symptoms in a similar way or that the doctor is aware of the differences in perception. Once there has been progress in the field of definition, then further work will be needed to discover if a particular symptom (such as drowsiness), or a cluster of symptoms, is related to the outcome of the illness. Alternatively, it is possible that decisions about management should not be taken without additional criteria. These may include the duration of the illness, social factors, parental attitudes and physical findings. Even if major symptoms can be more clearly defined, it seems unlikely that physical signs can be neglected in decisions about management, and consequently the emphasis on symptoms should be more balanced.

Management

One issue that concerns general practice is the provision of appropriate follow-up of cases either by arranging a definite further consultation with a doctor or another member of the practice team, such as the health visitor, or by stating clearly to the parent those factors which should alert them to recall the doctor. The difficulties of

defining major symptoms and the uncertainty as to their value indicate the problem of providing appropriate advice if the onus of recall is left with the parent. In this study, half the parents interviewed did not report receiving advice (excluding the receipt of a prescription). Many of the illnesses may have been self-limiting and of short duration, and it is perhaps on this issue of advice that doctors' reports of the same consultations would have been of most value in validating parents' responses. When a prescription was not issued, advice was more often reported, although this relationship was not statistically significant. One explanation is that the expectation and receipt of a prescription could have, through the processes of proactive or retroactive inhibition, interfered with the patient's remembering that additional advice had also been given. Further research into the explanations given to parents might lead to their becoming better equipped to make valid decisions about the need for medical attention. That general practitioners themselves can influence the demand for consultation is not in doubt; Morrell and colleagues, for example, showed that the provision of an information booklet for patients reduced, in particular, the number of house visits for minor illnesses.⁸

Selection

This investigation was based on data obtained from consultations reported to the researchers by busy general practitioners. Under-reporting is known to have occurred: a search of the records revealed that 265 consultations concerning the infants of eligible age had taken place during the study period, yet only 136 consultations were reported to the study team. The minimum response rate was therefore 51 per cent. The actual response rate was probably much greater than this, but was not determined since the 265 consultations included all types of contact, some of which would not have fulfilled the entrance criteria (for example those for immunizations). We felt that it would have been a major imposition on a busy practice to increase the amount of record keeping for the purpose of the study. While we have no reason to believe that the reporting was selective, it is not known if the unreported consultations were representative of all the relevant nonprophylactic consultations. Similarly, nothing is known of the 10 consultations which were reported but where the patients could not be traced.

The details of the consultations were based on retrospective reports from parents. It is well known that conditions are under-reported in interview surveys on health,⁹ but the evidence on spontaneous reporting in Table 3 does not suggest that there was any bias towards specific under-reporting of any major or minor symptoms.

Again it was thought that, for this study, it would be a major imposition on the practice to gather the doctors' perceptions of these consultations, but future workers should investigate this aspect.

Conclusion

Results from hospital-based data may not always be appropriate for general practice. In particular, we conclude from the present study that the crude division into major and minor symptoms alone is unhelpful to general practitioners in the management of ill infants since the major symptoms are too prevalent in everyday practice. More specific definitions are required. Further research, using agreed definitions of symptoms and inputs from parents and from general practitioners in a detailed prospective study seems necessary.

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