An examination of the prescribed therapeutic experience of five-year-olds in general practice

J. F. GRACE, MRCGP
General Practitioner, Rochester; College Tutor, Medway Postgraduate Centre
R. K. GOULDS, MB, CH.B
Vocational Trainee

SUMMARY. The number and therapeutic grouping of prescriptions given to children before reaching their fifth birthday were examined. The records of 92 children were looked at. Between them they had received 1,241 individual prescriptions of which 33 per cent were for antibiotics, and 31 per cent for an antihistamine or cough linctus. Ninety-six per cent of the children had received at least one course of antibiotics and the average child 4·5 courses (SD ± 3·9); 89 per cent had received an antihistamine or cough linctus, and 50 per cent a skin preparation.

Introduction

THE under-fives account for a large proportion of the general practitioner's time. Most of them are suffering from short-lived, self-limiting illnesses and often it is difficult to know, within the context of the individual consultation, just who the real patient is, child or parent. However, it is reasonable to suppose that a sizeable proportion of such consultations ends in the issuing of a prescription for the child. Obviously the manner in which these conditions are treated varies greatly from doctor to doctor, but it seems logical to keep the number of the often powerful and dangerous prescribed medicines to a minimum, given the vulnerability of the recipients.

Aim

As a preliminary to rationalizing our care of the common conditions affecting this age group we decided to see just what 'help' the average five-year-old needed in the way of prescribed medicines before his or her fifth birthday.

Method

The records of all children born between 1 November 1973 and 31 October 1974 were identified from the age/sex register, and examined. The total practice population for our group practice is 10,300. The practice is semi-rural, centred on three villages and a former village now engulfed by the spreading metropolis of the Medway Towns. There has been a great deal of new housing in the area, especially the development of private 'estate-type' dwellings. One of the villages is almost entirely comprised of these houses, and so has a disproportionately large number of young families. The social structure of the practice is fairly wide, with quite a number of farm workers, but mainly concentrating around social class 3.

The records of each child born between the relevant dates were examined first for completeness and continuity of records. Whenever there was evidence or suspicion that record cards had been mislaid or lost in the transference to our practice, that particular child was eliminated from our project. This left us with 92 records to analyse.

A list was kept of every prescription recorded in the notes which the child had been given, and the age of the child to the nearest month at that time. The prescriptions were then divided into therapeutic groups. Originally it had been intended to have one group for cough linctuses, another for antihistamines, and a third for hypnotics. It soon became obvious that even where the doctor had kept fairly full notes, these three groups often overlapped, and that more often than not there was no indication for what purpose a substance had been prescribed. Eventually we put all the prescriptions under these headings into one subgroup of cough linctus/antihistamine.

We had also hoped to determine the prescription/consultation ratio, but again the distinction between a consultation and a repeat prescription was often unclear from the notes, so the plan was abandoned.

Table 1. Analysis of prescriptions by therapeutic group.

Group	Number of prescriptions	Percentage of total N=1,241
Antibiotic	411	*33.1*
Cough linctus/antihistamine	386	*31.1*
Skin preparation	123	*9.9*
Non-fluorinated steroid skin preparation	54	*4.3*
Fluorinated steroid skin preparation	22	*1.8*
Preparation acting on the eye	58	*4.7*
Anti-diarrhoeals	41	*3.3*
Others	204	*16.4*

Table 2. Percentage of children having experience of individual therapeutic groups.

Group	Number of children	Percentage of total N=92
Antibiotic	88	*95.6*
Cough linctus/antihistamine	82	*89.1*
All skin preparations	46	*50.0*
Non-fluorinated steroid skin preparation	26	*28.2*
Fluorinated steroid skin preparation	10	*10.9*
Preparation acting on the eye	34	*36.9*
Anti-diarrhoeal	31	*33.7*
Analgesic	27	*29.3*
Others	62	*67.4*

Results

From the 92 record cards we found that a total of 1,241 items had been prescribed, with an average of 13·5 (SD ± 3·2) for each child. Only one child appeared not to have received any prescriptions at all, and we were confident that the record was accurate. At the other extreme was a child who had received 57 items in his first five years.

On analysing the items (Table 1), we found that the largest number of prescriptions in one therapeutic group was for antibiotics. There were 411 prescriptions for these, almost one third of the total, with an average of 4·5 prescriptions (SD ± 3·9) for each child. There were 386 (31 per cent) prescriptions in the cough linctus/antihistamine group, and 123 (10 per cent) for skin preparations, of which 27 per cent were for fluorinated steroid preparations.

From the point of view of the children (Table 2), 96 per cent had had experience of an antibiotic by their fifth birthday, with an average of 4·5 prescriptions per child (SD ± 3·9). The age at which antibiotics are prescribed is fairly uniform, although there is a suggestion that fewer are being prescribed towards the end of the fourth year (Figure 1).

Eighty-two (89 per cent) of the children had had a prescription for one of the cough linctus/antihistamine preparations, while 46 (50 per cent) had received a skin preparation, 10 (11 per cent) a fluorinated steroid, and 26 (28 per cent) a non-fluorinated corticosteroid skin preparation. About a third of the children had received an eye preparation, either drops or ointment, and the same number an anti-diarrhoeal agent.

We found that there was no particular age at which a child was likely to be given a prescription, although again there is a suggestion that the number of prescriptions falls off as the child reaches his or her fifth birthday (Figure 2).

Discussion

"Therapeutic freedom of choice is a freedom which belongs to a patient and physician alike. . . ."

(Jonsen, 1975)

The idea of a "consensual approach" (Byrne and Long, 1976) between doctor and patient to arrive at the best possible treatment following any given consultation is obviously more difficult to follow when the patient is under the age of five since the compromise solution between doctor and parent cannot approach the same level of mutual involvement in the decision-making process.

The modern interpretation of Hippocrates' "into whatever house I enter, I shall bring healing" all too often seems to mean the issuing of a prescription, affording a purely physical dimension to the healing act.

The under-fives appear to be a group particularly unable to arrive at a consensual agreement on their own management with their doctor yet are also especially liable to be taken to the doctor with self-limiting disorders, mainly of short duration, suitable perhaps for a non-interventive approach.

The Second National Morbidity Survey (RCGP *et al.*, 1974) reported that 90 per cent of children under five were taken to see their practitioners each year, and that the annual consultation rate for children under five was 3·6 consultations per child per year. Fry (1966) and Bain (1976) reported a consultation rate of eight in the first year of life. From our figures it appears that there is not a corresponding increase in the prescribing rate in the first year but that overall the consultation rate and prescribing rate are of the same order, about three per child per year.

Inherent in our figures, however, is the underestimation of prescriptions given and not recorded in the notes, for example on out-of-hours consultations and home visits—in other words, the problem of incompleteness (Sanazaro, 1974). Undoubtedly, these unrecorded prescriptions would have shown an increase in prescribing rates, especially for antibiotics and antihistamine/cough linctus.

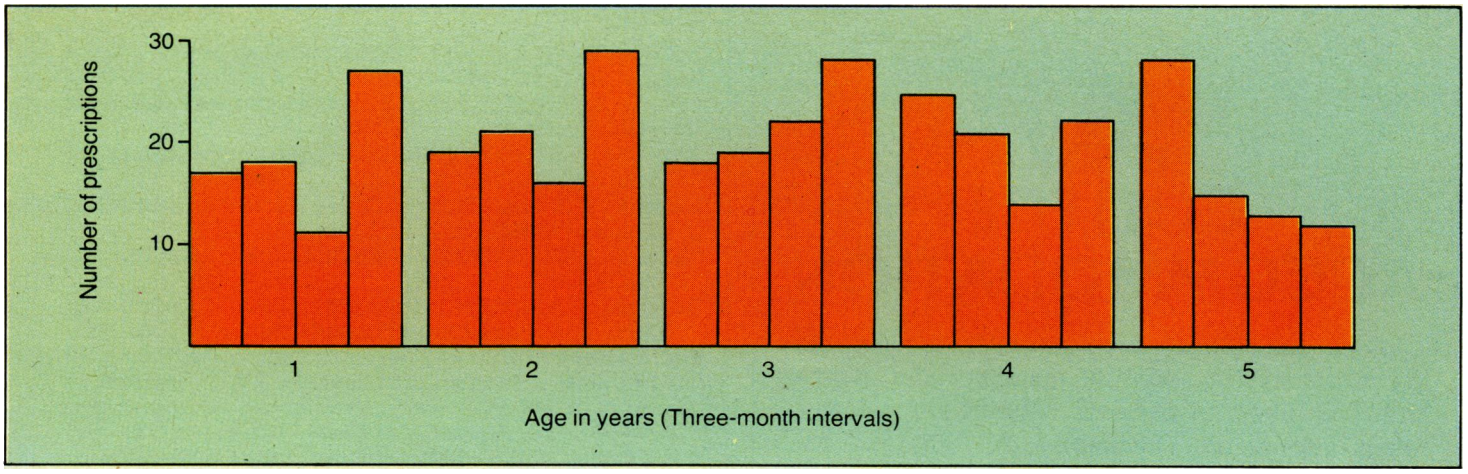

Figure 1. *Antibiotic prescribing by age.*

Figure 2. *All prescriptions by age.*

The dangers inherent, and the care needed, in paediatric prescribing have often been pointed out (*British Medical Journal,* 1976; Calzel, 1976), and the merits of a policy of specific drugs for specific diseases have been emphasized, as well as the difficulty in doing this with many of the conditions with which children present to their general practitioners.

It is therefore important that prescribing for the under-fives should be based on a logical, scientific and above all safe plan and thereby kept to a minimum.

We question whether the average child needs at least 13 prescribed medicines to enable it to reach the age of five. Does the average child need one course of antibiotics every year, when the majority are being given for an amorphous group of respiratory tract infections, of varying aetiology but on the whole self-limiting in severity and time? Do 11 per cent of children need a fluorinated corticosteroid skin preparation in the same period? Are anti-diarrhoeal agents still justifiable in terms of efficacy and safety, given the natural history of the illness they purport to help? Some authorities suggest not, but in our study over a third of the children had had these agents prescribed for them.

Conclusion

The creation of standards in general practice (Acheson, 1975), given the nature of the job, is difficult. The examination of the process of care is the first stage in trying to set some acceptable standard of care (Donabedian, 1966). In other words, before deciding what we should do, we ought at least to know what we do do at present. This was the aim of this survey. It is clear that we 'do', in the sense of active prescribing, quite a lot to our youngest patients. What we need now are the means to make accurate diagnoses, especially in respiratory tract infections, and the proper evaluation of many of the treatments we mete out to our young patients. We have hinted at 'what we do'; we need now to find out 'why', and 'with what result'.

COLLEGE ACCOMMODATION

Charges for college accommodation are reduced for members (i.e. fellows, members and associates). Members of overseas colleges are welcome when rooms are available. All charges for accommodation include breakfast and are subject to VAT. A service charge of 12½ per cent is added. Children aged 12 years and over, when accompanied by their parents, can always be accommodated; for those between the ages of six and 12 years, two rooms are being made available on a trial basis. Children under the age of six cannot be accommodated and dogs are not allowed. Residents are asked to arrive before 18.30 hours to take up their reservations.

From 1 April 1980, charges will be (per night):

	Members	Others
Single room	£8	£16
Double room	£16	£32
Flat 1	£25	£40
Flat 3 (self-catering with kitchen)	£35	£60

Charges are also reduced for members hiring reception rooms compared with outside organizations which apply to hold meetings at the College. All hirings are subject to approval and VAT is added.

	Members	Others
Long room	£60	£120
John Hunt room	£40	£80
Common room and terrace	£40	£80
Kitchen/Dining room	£20	£40

Enquiries should be addressed to:

The Accommodation Secretary,
Royal College of General Practitioners,
14 Princes Gate, Hyde Park,
London SW7 1PU.
Tel: 01-581 3232.

Whenever possible bookings should be made well in advance and in writing. Telephone bookings can be accepted only between 9.30 hours and 17.30 hours on Mondays to Fridays. Outside these hours, an Autophone service is available.

References

Acheson, H. W. K. (1975). Medical audit and general practice. *Lancet,* **1,** 511-513.

Bain, D. J. G. (1976). The continuing care of the handicapped child. *Update,* **12,** 707-720.

British Medical Journal (1976). Safe paediatric prescribing. Editorial, **2,** 1276.

Byrne, P. S. & Long, B. E. L. (1976). *Doctors Talking to Patients.* London: HMSO.

Calzel, P. (1976). Problems in paediatric prescribing. *Practitioner,* **217,** 396-402.

Donabedian, A. (1966) Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly,* **44,** Suppl., 166-206.

Fry, J. (1966). *Profiles of Disease. A Study in the Natural History of Common Diseases.* Edinburgh: E. & S. Livingstone.

Jonsen, A. R. (1975). Scientific medicine and therapeutic choice. *New England Journal of Medicine,* **292,** 1126-1127.

Royal College of General Practitioners, Office of Population Censuses and Surveys & Department of Health and Social Security (1974). *Morbidity Statistics from General Practice. Second National Study 1970-71.* London: HMSO.

Sanazaro, P. J. (1974). Medical audit. Experience in the USA. *British Medical Journal,* **1,** 271-274.

Increased insulin sensitivity and insulin binding to monocytes after physical training

We studied the effect of physical training on *in vivo* tissue sensitivity to insulin and insulin binding to monocytes in six previously untrained healthy adults. Physical training (one hour of cyclo-ergometer exercises four times per week for six weeks) failed to alter body weight but resulted in a 20 per cent increase ($p < 0{\cdot}02$) in maximal aerobic power (VO_2 max) and a 30 per cent increase ($p < 0{\cdot}01$) in insulin-mediated glucose uptake (determined by the insulin clamp technique). The increase in insulin sensitivity correlated directly with the rise in VO_2 max ($p < 0{\cdot}05$). Binding of $^{[125]}$ insulin to monocytes also rose by 35 per cent after physical training ($p < 0{\cdot}02$), primarily because of an increase in the concentration of insulin receptors.

Our data indicate that physical training increases tissue sensitivity to insulin in proportion to the improvement in physical fitness. Physical training may have a role in the management of insulin-resistant states, such as obesity and maturity-onset diabetes, that is independent of its effects on body weight.

Reference

Soman, V. R., Koivisto, V. A., Deibert, D. *et al.* (1979). Increased insulin sensitivity and insulin binding to monocytes after physical training. *New England Journal of Medicine,* **301,** 1200-1204.