Key messages

- Neonatal encephalopathy is an important clinical problem
- In this study the incidence of moderate or severe encephalopathy was found to be 3.75 per 1000 live term births, with a case fatality of almost 8%
- Intrapartum hypoxia, determined with traditional criteria, was not the cause of neonatal encephalopathy in most cases
- Signs of intrapartum fetal distress may be the first signs of pre-existing neurological abnormality, and events occurring in the antepartum period are an important cause of neurological abnormality in newborn infants
- These results have implications for obstetricians, paediatricians, and legal practitioners

insult that lead to neonatal encephalopathy we therefore need (a) more specific markers of intrapartum insult than those currently used, (b) better antepartum and preconceptional history to reduce the problem of non-random missing data and unknown exposures, (c) a reliable assessment of the state of the fetus and its reserve towards the end of the antepartum period before starting labour, and (d) larger population based studies that may be analysed with methodologies such as path analysis³¹ so that hypotheses based on complex causal chains can be investigated.

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Consequences of occupational asthma

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Some 500 new cases of occupational asthma are reported annually in the United Kingdom, a figure considered to underestimate the true incidence by at least threefold¹; most patients are young and economically active. Previous studies of the socioeconomic outcomes of occupational asthma have not distinguished the consequences of developing asthma from those specific to occupational asthma.^{2,3}

Patients, methods, and results

We surveyed all patients referred to a specialist clinic

between 1987 and 1992 who had been given a final diagnosis of asthma. All had been referred for investigation of a possible occupational cause; most had subsequently been discharged. Using the clinician's final diagnosis, patients were divided into three categories: those with occupationally induced asthma, those with pre-existing or coexisting asthma exacerbated by work, and those with asthma unrelated to work. Diagnoses were made by a combination of clinical history, measurement of specific antibodies, serial peak flow recordings, and specific inhalation testing. A postal questionnaire inquired into job changes made because of asthma, consequences on income, difficulties in acquiring new work, and current treatment. Socioeconomic group was recorded by using a standard classification.⁴

We surveyed 225 subjects: 113 (50%) had occupational asthma, 37 (16%) had asthma exacerbated by work, and 75 (33%) has asthma unrelated to work. These proportions did not change over the five years,

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Asthma: effects on income and employment. Values are numbers (percentages)

	Occupational asthma (n=87)	Work exacerbated asthma (n=26)	Asthma not related to work (n=65)
Earnings affected*:	54 (62)	17 (65)	25 (38)
More	1 (1)	0	1 (2)
≥ 40% Less	22 (25)	10 (38)	16 (25)
< 40% Less	26 (30)	6 (23)	7 (11)
Receiving industrial injuries disablement benefit	24 (28)	3 (12)	
Currently employed	53 (61)	18 (69)	44 (68)
Change to job†:	78 (90)	23 (88)	35 (54)
Same job with protection	17 (20)	5 (19)	9 (14)
Had period of unemployment	25 (29)	9 (35)	10 (15)
Had to leave job	42 (48)	10 (38)	16 (25)
Relocated within firm	18 (21)	6 (23)	8 (12)
Changed career	28 (32)	8 (31)	13 (20)
Asthma has made getting employment more difficult*:	44 (50)	13 (50)	15 (23)
Physical restriction	13 (15)	6 (23)	8 (12)
Prejudice of employers	16 (18)	4 (15)	6 (9)
Chosen career no longer feasible	14 (16)	2 (8)	0
Still taking treatment	65 (75)	25 (96)	52 (80)

*Some subjects did not give this information.

†Subjects could give more than one response.

allowing a similar length of follow up for each category. The response rate was 89% after exclusion of 24 who did not receive a questionnaire. Responders did not differ significantly from non-responders in age, sex, diagnosis, or socioeconomic group.

The mean age in each category was about 40 years. Thirty one per cent of those with occupational asthma were women (35); 33% (37) were in socioeconomic groups I and II, accounted for by the high proportion of research scientists and technicians. The other categories had twice as many men as women and had higher proportions in lower socioeconomic groups.

The effects on income and employment were similar in patients with occupational and work exacerbated asthma but differed significantly in patients with asthma unrelated to work (table). Proportions of those currently employed were similar in all categories, but those with occupational and work exacerbated asthma reported greater difficulty in finding new work and higher proportions had changed or suffered disruption to their jobs. There were no consistent differences between men and women. Those in manual socioeconomic groups reported greater difficulty in finding

new work, greater loss of income, and were less likely to be currently employed.

Earnings were adversely affected in all categories, more in those with occupational or work exacerbated asthma, of whom 30% reported losing more than 40% of income ($\chi^2=7.43$, $df=1$, $P=0.006$) compared with those whose asthma was unrelated to work. This loss was not offset by industrial injuries disablement benefit, which was more commonly received by patients referred before 1990.

Comment

In addition to the respiratory disability caused by asthma, patients with work related asthma, whether initiated or provoked by agents inhaled at work, suffer adverse economic and employment consequences. For most outcomes there was little difference between those with occupational or work exacerbated asthma. For many patients, continuing a chosen career, often after many years' training, was not possible. Those in higher socioeconomic groups found it easier to diversify into related careers; skilled manual workers had less opportunity to transfer into equally skilled work and often obtained unskilled work or became unemployed. Those with work related asthma who had made no change (10%) may have decided that their livelihood was as important as their health. The low proportion receiving disablement benefit has been a consistent finding in similar studies. Some patients did not claim benefit because they believed it would stigmatise them in the job market. Patients clearly need appropriate advice about their entitlements.

These findings highlight the importance of correctly identifying any relation between asthma and work and also the dangers of false attribution.

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Death at the pool

I had welcomed the chance to ponder, while swimming with mindless determination at the leisure centre, on the diagnostic signals of thoracic or abdominal scars. For it was only six months since I had given my final anaesthetic in an American hospital—and resuscitated my last patient. After 43 years, this, now, was retirement in Surrey.

The man's age, I had guessed, was early 70s, and a heart valve replacement or a coronary bypass could be assumed from a well healed chest incision. I think his wife saw him go down a few seconds before I did. Although at the deep end, he was close to the poolside and rescued quickly. By the time I heaved myself out, four attendants had formed a tight circle. His wife stood nearby, immobile in hand over mouth bewilderment. The other dozen or so swimmers, some distance away, had begun a silent, doleful watch.

I eased into the small group. They were young, probably early 20s, rude in health and energy. One of them had an oxygen mask on the man's face, another pumped the chest. No respiration; blotchy and worsening cyanosis; radial pulse surprisingly strong and slow? My immediate diagnosis was not cardiac, but pulmonary

embolism. And the only hope (unavailable drugs apart) seemed to be positive pressure ventilation, for which their equipment (so quickly produced) was not designed.

Perhaps my frustrated mutterings alerted them to a training dictum—no interference from "outside" would-be resuscitators. So I was asked to withdraw—worse, I was compelled by a resolutely firm armgrip.

My diagnosis, if correct, was irrelevant to the unquiet surroundings, and it certainly had no meaning for the life-savers. I had ensured a clear airway, and my somewhat brutal rejection altered nothing. But it might have done.

Even now, four years later, nostalgic for the fellowship of drama I had known, I can be instantly there, back in the theatricals of the operating room. That day, by the swimming pool, I had expected experience to count, be recognised. But not so.

I hope, with a different prognosis, that I would have acted more authoritatively, and refused to budge.

No, I did not suggest that the neighbouring council improve its leisure centre's paramedical equipment. For I have seen too much pointless resuscitation. Yet one is always left wondering.—RONALD MILLAR is a retired anaesthetist in Surrey