Short reports

Pattern of illness in babies discharged from a special care unit

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SUMMARY Babies discharged from special care are three times as likely to be readmitted to hospital with common acute illnesses, and to stay longer than other babies. Apnoeic episodes occurred exclusively in those infants who had not received special care, and half of all hospital admissions required less than 48 hours hospital stay, with no specific medical treatment.

Developmental progress is the yardstick by which neonatal intensive care of small babies¹ is usually judged, so that much is made of neurodevelopmental disorders in low birthweight babies, while little is known of the incidence of acute 'medical' conditions during the early years. Babies discharged from special care units^{2,3} show increased rates of post perinatal and cot death mortality, and may also suffer from more acute illnesses than the rest of the community, leading to greater use of medical facilities. This is a study of the hospital morbidity pattern of babies discharged from special care during the first 8 months of life.

Methods

Of the babies born in Southampton between February 1982 and January 1983, those discharged from special care and those later admitted to hospital before the age of 8 months were studied. Details of age, sex, birthweight, date of birth, date of admission and discharge, cause of admission, and final diagnosis were obtained from records, and compared for special care discharges and for others.

Results

The birth cohort consisted of 4967 babies, of whom 537 (11%) were admitted to special care and 4430 (89%) were not. Twenty seven babies died in special care, giving 510 discharges. A total of 454 infants (9% live births) were readmitted to hospital during 586 separate admissions. Ninety three (20%) babies,

who accounted for 148 admissions, had been discharged from special care, that is 18.5% of discharges; while the other 361 babies, that is 8% of the non-special care population, accounted for 438 admissions. Babies discharged from special care were therefore 2.9 times more likely to be readmitted than others. The ages at which babies were admitted are shown in the Figure, most being between 2 and 4 months old.

Admission by cause. The reasons for admission (Table) are similar in both groups with two major differences. Congenital deformities are a major factor accounting for 19.5% in special care discharges and 5.9% in the others, while, surprisingly, 18 babies admitted for apnoea and cyanosis were all from the non-special care group.

Twenty six per cent of all admissions, with equal proportions in both groups were caused by respiratory illness. Gastrointestinal disorders formed the second largest group with 13.5% in special care discharges and 15.6% in others. The other causes of admissions—social, convulsions, feeding, and minor surgical problems—were similar for both groups.

The 18 babies with apnoea, all from the non-special care group, accounted for 24 admissions

Figure Age at hospital admission in babies under 8 months who had been discharged from the special care unit (SCBU) and others.

Table Hospital admissions in babies under 8 months discharged from special care unit and others in relation to cause

	Special care discharges	Others
	No (%)	No (%)
Congenital	29 (19.5)	26 (5.9)
Social	6 (4.1)	11 (2.5)
Convulsions	7 (4.7)	13 (3.1)
Respiratory	39 (26.4)	115 (26.2)
Feeding	18 (12.2)	52 (11.8)
Gastroenteritis	20 (13.5)	68 (15.6)
Surgical	12 (8.1)	56 (12.7)
Miscellaneous	12 (8.1)	45 (10.2)
Viral	5 (3.4)	34 (7.8)
Apnoea	0 (0)	18 (4.1)
Total	148 (100)	438 (100)

totalling 59 days stay. Three babies had two admissions, one who had a sibling cot death required four admissions. There were 11 boys and 7 girls, aged between 2 and 29 weeks. In 11 babies, apnoea occurred spontaneously; in six the attacks were associated with feeding, choking, or vomiting with possible inhalation; and in one case coughing was the main feature. Choking and apnoea were confirmed in five infants, with vomiting related to upper respiratory infection in one baby. Two babies were found to have non-serious cardiac murmurs; two had confirmed respiratory infection; and in one a subconjunctival haemorrhage was the only abnormal finding. There were no deaths among these babies.

Length of stay. All admissions accounted for 2218 days in hospital, with special care discharges averaging 6.2 days per admission, and the others 4.5 days each. Some 30.5% of all admissions were for 24 hours, while nearly half (48.9%) were admitted for less than 48 hours. Not surprisingly, the lowest birthweight babies stayed longer in special care and in hospital, with those weighing less than 1500 g at birth averaging 47.5 days in special care and 8 days in hospital, while larger babies had 1 day in special care and 2.5 days in hospital.

Discussion

Congenital anomalies apart, special care discharges show a similar pattern of illness to other babies, but are three times more likely to be admitted to hospital. This, together with a 10% admission rate, re-emphasises infant vulnerability to a variety of illnesses, and highlights factors that influence babies' welfare antenatally and well into infancy. Thus, the low birthweight infant, a product of adverse perinatal conditions, accounts for the bulk

of special care admissions, and proportionately more illness later on. It is likely that both parental and professional anxiety concerning primary infant care contribute to the high level of admissions and account for nearly one half of those requiring brief hospital stay and minimal medical attention.

Apnoea, which provides one possible explanation for infant death, is associated with immaturity of respiratory control in preterm babies^{3,4} and with sleep and possibly oesophageal reflux⁵ in infancy. None of the babies with apnoea in this study had been in special care; six had apnoea associated with 'choking on feeding'; and two others had respiratory infection. It is likely that disordered respiratory control is present in some term babies, and that a combination of this, mild respiratory infection, and regurgitation of feeds could be life threatening in seemingly healthy babies. The preponderance of term infants in Silva's⁶ 29 'near miss' cot deaths supports these findings.

Demand for hospital care not only emphasises the vulnerability of infants to acute illnesses, but reflects the anxieties and shortcomings of the primary care and community services in providing for vulnerable infants. Greater awareness of child health problems at primary care level and improved access to locally based paediatric expertise could improve community child care appreciably, and reduce the large number of unwarranted and unnecessary 'social' hospital admissions in infants.

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References

- Hagberg B, Hagberg G, Olow I. Gains and hazards of intensive neonatal care: an analysis from Swedish cerebral palsy epidemiology. *Dev Med Child Neurol* 1982;24:13-9.
- Sills JH, Neff TE, Bennett FC, Robinson NM. Mortality in infants discharged from a neonatal intensive care unit. *Am J Dis Child* 1983;137:44-7.
- Yardley J, Wailoo MP, Harman M. Post perinatal mortality among infants discharged from special care units. *Br Med J* 1984;288:366-7.
- Southall DP, Richard JM. Prolonged apnoea and cardiac arrhythmias in infants discharged from neonatal intensive care units: failure to predict an increased risk for sudden infant death syndrome. *Pediatrics* 1982;70:844-51.
- MacFadyen U, Henry G, Simpson H. Gastro-oesophageal reflux in near miss sudden infant death syndrome or suspected recurrent aspiration. *Arch Dis Child* 1983;58:87-91.
- de Abreu e Silva FA, MacFadyen UM, Simpson H. *Proceedings of international research conference on SIDS*. Baltimore, USA: Academic Press, 1983:653-67.

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