

HYDRAMNIOS IN RELATION TO FOETAL MORTALITY

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It has long been recognized that hydramnios is associated with a high foetal mortality and a high incidence of foetal abnormalities.

In this paper the incidence of foetal mortality and morbidity associated with hydramnios has been calculated and an attempt has been made to show the prognosis for the foetus of a mother with hydramnios.

Material

A retrospective survey was made of patients at the Jessop Hospital for Women, Sheffield, from 1949 to 1958 inclusive. This hospital admits primigravidae and women with complications of pregnancy.

In the 10-year period there were 16,214 pregnancies resulting in 16,628 births. In the same period there were 256 pregnancies with hydramnios, resulting in 287 births (Table 1). In the 15,853 live births the incidence of hydramnios was 18 per 1,000, compared with an incidence of 3.1 per 1,000 given by Malpas (1937) in Liverpool, and Prindle, Ingalls and Kirkwood (1955) in Boston. Moya, Apgar, James and Berrien (1960) found 79 infants associated with hydramnios in 24,316 deliveries, an incidence of 3.2 per 1,000 births.

Method

In formulating criteria for the diagnosis of hydramnios we have accepted conditions similar to those of Scott and Wilson (1957), i.e. either the recording of clinical hydramnios by two independent obstetricians, or the recovery of 1,500 ml. or more of liquor at amniotomy.

Maternal and infant records and autopsies were examined.

Results

Of the 287 infants in this series, 43% were stillbirths or died in the neonatal period; 164 babies

survived beyond the neonatal period (Table 1). Prindle *et al.* (1955) found a perinatal mortality of 51% in 155 infants, and Moya *et al.* (1960) reported a mortality of 29% in 79 infants associated with maternal hydramnios.

One hundred and eighteen infants (41%) had one or more congenital defects. The abnormalities found are grouped into systems in Table 2. Of the central nervous system the following abnormalities were found: anencephaly in 59 (three in one of twins), hydrocephaly, encephalocele, meningocele, or iniencephaly in 14, mongolism in one, congenital bulbar palsy in one, palatal paralysis in one, and one mentally retarded child. Achondroplasia occurred in five, Klippel-Feil syndrome in one, mediastinal obstruction due to hamartoma of the lung in one, congenital heart disease in two, congenital goitre in one and choanal atresia in one. In the gastrointestinal tract there was absence of the mandible in one patient, cleft palate and harelip in eight,

TABLE 1
SURVIVAL—MORTALITY FIGURES, AND PERCENTAGE DISTRIBUTION OF STILLBIRTHS AND NEONATAL DEATHS

| | Hospital Population: 16,628 | Hydramnios Series: 287 |
|--------------------|--------------------------------|---------------------------|
| Stillbirths | 775 (5) | 89 (31) |
| Neonatal deaths .. | 477 (3) | 34 (12) |
| Total deaths | 1,252 (8) | 123 (43) |
| Survivals | 15,376 (92) | 164 (57) |

Figures in parenthesis are percentages.

TABLE 2
DISTRIBUTION OF CONGENITAL ABNORMALITIES IN 118 OUT OF 287 INFANTS ASSOCIATED WITH HYDRAMNIOS

| Distribution of Congenital Abnormality | Total | Alive | Dead |
|---|-------|-------|------|
| Central nervous system | 75 | 3 | 72 |
| Musculo-skeletal system | 6 | — | 6 |
| Ear, nose and throat | 1 | 1 | — |
| Respiratory system | 1 | — | 1 |
| Cardio-vascular system | 2 | 1 | 1 |
| Gastro-intestinal system | 31 | 7 | 24 |
| Miscellaneous | 2 | 2 | — |

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oesophageal atresia in seven, duodenal atresia in one, diaphragmatic hernia or defects in four, severe hydrops in six, foetal ascites in one, and imperforate anus in two.

Other causes of death were: cerebral haemorrhage (10), intrauterine and intrapartum anoxia (six), prematurity (five), respiratory distress syndrome (two), infections (two) and atelectasis (two).

In the 10-year period there were 10 babies with oesophageal atresia, of whom seven were associated with maternal hydramnios. In this series one in every 41 cases of hydramnios was associated with oesophageal atresia. Carvalho (1954) estimated that in one out of 12 cases hydramnios was due to oesophageal atresia. Prindle *et al.* (1955) found that 20 out of 107 babies with this condition were associated with maternal hydramnios, and Scott and Wilson (1957) found hydramnios in 12 out of 13 cases of oesophageal atresia. Of our seven patients with oesophageal atresia, six were stillborn or died in the neonatal period.

In this study, achondroplasia was found in six infants out of 16,628 births, of which five were associated with hydramnios. There were no survivors.

Discussion

These results confirm the view that hydramnios

is associated with gross abnormalities in the foetus, and a high morbidity and mortality rate.

Little is known of the cause and origin of hydramnios. In many of the congenital abnormalities a mechanical factor may be involved, preventing normal swallowing of amniotic fluid by the foetus *in utero*, as suggested by Scott and Wilson (1957). This is not, however, a relevant consideration in achondroplasia, and the reason for the association is not clear.

Summary

A retrospective study of 287 births associated with hydramnios revealed that 43% of the babies were stillborn or died in the neonatal period. Congenital abnormalities were present in 41% of infants.

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