

Birth Order and Intracranial Haemorrhage among Twin pairs in the Neonatal period

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Summary

Nzeh DA, Ajayi OA. Birth Order and Intracranial Haemorrhage among Twin pairs in the Neonatal period. *Nigerian Journal of Paediatrics* 1996; 23 : 62. Transfontanelle ultrasound (US) was performed on 28 babies consisting of 14 twin pairs, to detect any intracranial haemorrhage (ICH). The mean birthweight (BW) of the babies was 1246 ± 263 gm (range 650 - 1700gm), while the mean gestational age was 31 ± 0.8 weeks (range 30-32 weeks). The mean age of the babies at the time of scan was 8 ± 3 days (range 2-13 days). There was no significant difference ($P > 0.05$) between the mean BW [1243 ± 253 gm (range 750 - 1700gm)] of the first-born twins (group A) and that of the second-born twins (group B) [1250 ± 282 gm (range 650-1700gm)]. Intracranial haemorrhage was present in 7.1 percent of the group A twins and in 21.3 percent of the group B twins. These results show that BW alone was unlikely to make twin B babies more liable to ICH than twin A ones; the results also reinforce the proposition that the wellbeing of the second twin can be improved by skilful and properly co-ordinated management.

Introduction

HIGH twinning rates of between 30 and 45 per 1000 have been reported from various parts of

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Nigeria.^{1,3} Twin pregnancies are associated with an increased incidence of premature labour and low birthweight (LBW) compared to singleton pregnancies.⁴ Prematurity and LBW are recognised risk factors for intracranial haemorrhage (ICH); other known risk factors include low Apgar score, resuscitation method, level of blood gases and intravenous medication.^{4,6} It has been observed that the second born twin has a higher morbidity than the first twin.^{7,8} Ultrasound (US) has been employed in the diagnosis of twins to enable proper management

of multiple pregnancy.^{9 10} However, the literature is scanty with regard to the role of US in the assessment of brain structures for any association of birth complications with twin pregnancy. The aim of the present study was to evaluate the possible effect of birth order on the development of ICH among twin pairs and ascertain whether or not the second born twin is at greater risk than the first twin in this regard.

Patients and Methods

Twenty-eight babies, consisting of 14 twin pairs (12 males and 12 females) admitted to the Neonatal Intensive Care Unit of the University of Ilorin Teaching Hospital (UITH) over a period of 24 months (January 1992 to January 1994) and who had transfontanelle US scan done, were included in the study. The babies had a mean birthweight (BW) of $1246 \pm 263\text{gm}$ (range 650-1700gm) and were delivered at a mean gestational age (GA) of 31 ± 0.8 weeks (range 30-32 weeks). The mean age of the babies at the time the scans were performed, was 8 ± 3 days (range 2-13 days). Informed maternal consent was obtained in respect of the babies who were scanned as part of active management whilst on admission at the UITH.

All scans were performed through the anterior fontanelle, using a *Siemens Sonoline SX* real time sector scanner with transducer frequency of 5MHZ. Intracranial haemorrhage was classified into four grades, using the method described by Burstein, Papile and Burstein:¹¹ in grade I, subependymal haemorrhage is confined to the germinal matrix, in grade II,

there is an extension of haemorrhage into a normal sized lateral ventricle, in grade III, there is haemorrhage into a dilated lateral ventricle, and in grade IV, there is intraparenchymal extension of haemorrhage.

For statistical analysis, the babies were divided into two groups: group A consisted of first born twins and group B, second born twins. The birthweights of the babies in the two groups were compared for any significant difference using the analysis of variance. Due to the small number of patients with ICH, test for statistical significance was not performed for those cases that developed haemorrhage.

Results

The mean BW of the group A twins was $1243 \pm 253\text{gm}$ (range 750-1700gm), while that of the group B twins was $1250 \pm 282\text{gm}$ (range 650-1700gm). There was no significant difference in the mean BW between the two groups ($p > 0.5$).

Only one (7.1 percent) of the 14 group A babies had an intracranial haemorrhage and this was grade I. By contrast, ICH was present in three (21.4 percent) of the 14 group B babies; in two (14.3 per cent) of the 14, it was a grade I haemorrhage, while the third (7.1 percent) had a grade III haemorrhage (figs 1 and 2).

Discussion

With an accuracy of about 90 percent for diagnosis of ICH, transfontanelle ultrasound has proved to be a useful tool for detecting intracranial haemorrhage in the neonatal period.¹² Previous studies have suggested that

there is an increased morbidity in the second-born twin presumably due to a greater risk of asphyxia in this group.⁸⁻¹³ Asphyxia itself has

been implicated as a risk factor for intraventricular haemorrhage although Pearlman and Batton¹⁴ were unable to

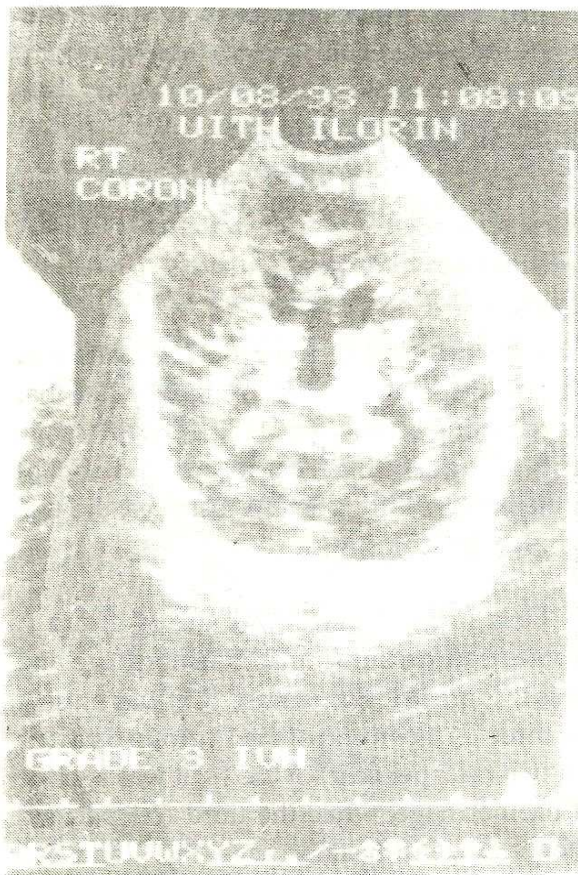


Fig 1. Angled coronal US scan of the brain in a nine-day-old second born twin with GA 31 weeks and BW 1200gm who developed grade III ICH. Note an intraventricular haematoma with mild dilatation of both lateral ventricles.

Fig 2. Parasagittal US scan of the brain of the same case in Fig 1, showing intraventricular haematoma in the dilated left lateral ventricle.

demonstrate a difference in the pattern of intraventricular haemorrhage between first and second born twins. Another study was also unable to demonstrate a significant dissimilarity in the incidence and severity of ICH among twin pairs.

In the present study, there was no significant difference in the birthweights of the first and second born twins to suggest that this factor alone could predispose the twin B group to ICH. The second born twins had a higher incidence of 21.4 percent of ICH than that of 7.1 percent in the first born twins. However, the number of babies with ICH in the present series was not sufficient to enable a test of statistical significance in the two groups. The argument as to whether or not the second twin is at greater risk remains a matter of conjecture because of conflicting views expressed in various reports.¹³⁻¹⁵ The current thinking however, is that the well-being of the second twin can be improved by skilful and properly co-ordinated antenatal care and perinatal management.

Acknowledgement

We are grateful to Mrs MT Olagunju for providing secretarial assistance.

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