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FETAL GROWTH, PRETERM BIRTH, NEONATAL STRESS AND RISK FOR CNS TUMORS IN CHILDREN: A NORDIC POPULATION AND REGISTER-BASED CASE-CONTROL STUDY

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We investigated the association between indicators of fetal growth and neonatal stress and CNS tumours diagnosed in the Denmark, Sweden, Norway and Finland in 1985-2006, using data from national cancer registries and medical birth registries. We included 3,443 children with primary CNS tumours and 16169 individually matched controls drawn randomly from the national population registries.

We observed a U-shaped relation between risk for CNS tumors and birthweight, at >4.5 kg (OR 1.27; 95% CI, 1.03-1.55) and < 2.0 kg (OR, 1.50; 95% CI, 1.13-1.99), the latter being attenuated after adjustment for gestational age. Moreover, small-for-gestational age (OR, 1.28; 95% CI, 0.98-1.66) and large-for-gestational age (OR, 1.26; 95% CI, 1.02-1.55) were both associated with CNS tumors. The OR for preterm births was increased per 1-week decrease in gestational age (OR, 1.58; 95% CI, 1.04-2.44). Increased ORs were also observed for head circumference >38 cm (1.80; 95% CI, 1.18-2.74), 5-minute Apgar score < 7 (1.44; 95% CI, 0.98-2.12), and breech presentation (1.33; 95% CI, 1.04-1.69). The observed associations varied little by histologic subgroup.

This study provides evidence that several intrauterine and neonatal factors are associated with higher risk of CNS tumours, indicating an early onset or, alternatively, potentially harmful exposures in the neonatal period that might be preventable.

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NURSE-LED TELEPHONE REFERRAL TO PAEDIATRIC EMERGENCY AND ASSESSMENT UNITS

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Background: An increasing number of acute referrals have led to unsatisfactory working conditions and a degradation of the service to the families attending paediatric emergency and assessment units. The usual way of referring for the general practitioner (GP) was by telephone to the resident assistant. This study investigated if a nurse-led telephone referral system would optimize conditions for patients and staff.

Aim:

- To create optimal continuity of care
- Optimise service to GPs' and other collaborators
- Improve quality of care to the families
- To improve working conditions in the PEAU

Method: The project period was from October to December 2009. A team of paediatric nurses were in charge of the referral system with backup from the attending physician. Prior to the project the nurses were introduced to a guideline which included a model to ensure efficient and accurate reception and transmission of information - the ISBAR model. The project was evaluated using an electronic questionnaire and focus group interviews.

Findings: Nurse-led telephone referral helped to create:

- Optimal continuity of care as the nurses in charge of referral had a better overview
- Improved working procedures as information about the children were already documented prior to arrival to the PEAU
- Better working environment as staff was able to examine the children and talk to the families without interruptions
- Improved quality of the referral system according to the GPs

Conclusion: A nurse-led referral system to a PEAU has proven successful and staff reported improved working conditions.

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ECHOCARDIOGRAPHY SERVICE PROVISION AND TRAINING OPPORTUNITY IN A TERTIARY NEONATAL UNIT

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Aim: To evaluate the echocardiography service provision and training opportunity in a tertiary neonatal unit.

Method: All echocardiograms performed on the neonatal unit are entered into an anonymous access database. Information regarding all echocardiograms performed over a period of two years (January 2008 to December 2009) was collected prospectively. The location of patients, designation of clinician performing the scan and echocardiography findings was determined.

Results: Over a period of two years, 918 echocardiograms were performed on 594 babies on the neonatal unit, postnatal wards and out-patient clinic. The commonest reason for referral across all locations was presence of a murmur on examination. 720 (78.4%) echocardiograms revealed a structural or functional cardiac abnormality needing appropriate treatment, referral to the paediatric cardiologist or follow up as necessary. The majority of scans (74.5%) were undertaken by trainees under supervision.

Conclusion: Our experience shows that provision of echocardiography service in a neonatal unit has a high yield for early diagnosis, referral and appropriate therapy. As most NICU's do not have bedside specialist cardiology service, there is an increasing demand and need to train neonatologists to develop echocardiographic skills in collaboration with their cardiology colleagues. We found that there is ample training opportunity for career trainee neonatologists to develop these skills under close supervision in tertiary centres that provide echocardiography. This will improve patient care as well as hopefully reduce the caseload on regional cardiac specialist services.

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BREAST MILK FEEDING AT DISCHARGE VARIES BY HOSPITAL AND LATITUDE IN VERY PRETERM INFANTS IN ITALY

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Aim: To study the mode of feeding at discharge in a cohort of very preterm infants in Italy, and investigate differences among hospitals.

Methods: We studied 6197 infants < 1500 g or < 30 weeks gestation, born in 2004-2008, and discharged home from 57 tertiary-care hospitals (about 2/3 of all Italian units) participating in the Italian Neonatal Network.

Feeding at discharge was coded as any breast milk (BM) versus formula.

Results: Overall, 59.8% were discharged home on BM.

Neonates discharged on BM had higher gestation (30.1 vs 29.2 weeks), higher birthweight, and higher weight for GA (Z-score). After adjusting for GA and birthweight, neonates on BM were discharged 5 days earlier and at a lower weight (218 g less).

Differences between hospitals were striking, with the proportion of BM at discharge ranging from 5.4 to 87.8% (interquartile range 47-70%).

In addition, there was a clear North-South gradient across Italy: the adjusted odds ratio of BM was 0.60 for Central Italy and 0.52 for Southern Italy, as compared to Northern Italy. Even after taking infant characteristics and latitude into consideration, differences between hospitals were highly significant ($P < 0.001$), and this explained 14% of variance.

Conclusion: This large cohort shows that most very preterm infants are discharged home on BM. This compares favourably to the Vermont-Oxford Network proportion (46.3%).

In addition to infant characteristics, hospital and region of birth are responsible for striking differences in feeding method at discharge.

An analysis of different "styles of care" of NICUs is needed.