

# Key factors in understanding different rates of birth defects

New research highlights important information for health professionals and parents about the factors which may increase the likelihood of a baby being born with a birth defect (Sheridan et al, 2013).

The findings, from researchers at the Universities of Bradford and Leeds, funded by the National Institute for Health Research (NIHR), confirm that the two main factors associated with an increased risk of babies being born with a birth defect are being born to an

**Professor Neil Small, Professor of Health Research, School of Health Studies, University of Bradford, Bradford**



older mother or to parents who are blood relations.

In addition, the research team was also able to confirm that socio-economic status had no effect on the relative risk of birth defects, despite two-thirds of the mothers participating in the study coming from the most deprived fifth of the British population. The data also showed that higher levels of maternal education halved the risk of having a baby with a defect across all ethnic groups.

While the study cohort includes a total of 43 different ethnicities, the largest ethnic groups were Pakistani (45%) and white British (just under 40%).

In the Pakistani subgroup, 77% of babies born with birth defects were to parents who were in consanguineous marriages. In the white British subgroup 19% of babies with an anomaly were born to mothers over the age of 34 years. Links between the age of mothers and the prevalence of birth defects are already well-established.

Professor Neil Small, co-author of the study from the University of Bradford, said: 'The research is of particular importance to Bradford, because of the characteristics of its population. Half the babies born in the city's one maternity hospital have a parent whose

family origins are in Pakistan. But the findings also have relevance to other areas of the UK and across the world in countries where consanguineous marriage is a cultural norm.

'In Bradford, there are initiatives that seek to raise community awareness and services such as genetic counselling and testing in place that can be accessed by couples who are married or considering marriage to a blood relative.'

Professor Small emphasized: 'It is not our intention to counsel couples about who they choose to marry. But we do want to ensure that couples are aware of any risks so that they can make informed choices when planning their families.'

Sheridan E, Wright J, Small N et al (2013) Risk factors for congenital anomaly in a multi ethnic birth cohort: The Born in Bradford study. *Lancet* Jul 3 (Epub ahead of print)

## Brain hypoxia link with dural bleeding under 3 years of age

There is a strong association between bleeding in certain areas of the brain and brain damage caused by a lack of oxygen. A study focused on bleeding in the falx/dural fold, beneath the tentorium/dural fold, and the dura, in the hope of understanding how this condition progresses and develops (Scheimberg et al, 2013).

The team analysed autopsies of more than 250 fetuses (gestational age of at least 24 weeks) and more than 380 infants and children up to 3 years of age. The autopsies were performed at two UK hospitals between 2007 and 2009.

The authors found a clear relationship between subdural haemorrhaging and hypoxic-ischaemic encephalopathy.

The authors concluded that the severity of dural bleeding was associated with the amount of time the brain was deprived of oxygen, confirming the link between dural bleeding and hypoxic-ischaemic encephalopathy.

However, they emphasized that not all infants with brain hypoxia showed signs of subdural bleeding and that other factors, such as increased intracranial pressure and abnormal blood clotting, must be implicated in the cases that do.

Scheimberg I, Cohen MC, Zapata Vazquez RE et al (2013) Nontraumatic intradural and subdural hemorrhage and hypoxic ischemic encephalopathy in fetuses, infants, and children up to three years of age: analysis of two audits of 636 cases from two referral centers in the United Kingdom. *Pediatr Dev Pathol* 16(3): 149–59

## COPD increases risk of developing cerebral microbleeds

Chronic obstructive pulmonary disease (COPD) is associated with an increased risk of developing cerebral microbleeds, according to research from the Netherlands (Lahousse et al, 2013). Cerebral microbleeds are a marker of cerebral small vessel disease, an important cause of age-related disability and cognitive decline.

The study included 165 subjects with COPD and 645 subjects with normal lung function from the Rotterdam study, a prospective population-based cohort study in subjects ≥55 years of age. COPD diagnoses were confirmed by spirometry and cerebral microbleeds were

detected with high resolution magnetic resonance imaging.

COPD patients had a significantly higher prevalence of cerebral microbleeds than subjects with normal lung function. This was independent of age, sex, smoking status, atherosclerotic large vessel disease, antithrombotic use, total cholesterol, triglycerides and serum creatinine levels. The prevalence of microbleeds in deep or infratentorial locations was also significantly increased in patients with COPD.

Lahousse L, Vernooij MW, Darweesh SKL et al (2013) Chronic obstructive pulmonary disease and cerebral microbleeds: the Rotterdam study. *Am J Respir Crit Care Med* 25 Jul (Epub ahead of print)