Resuscitated newborns at risk for lower IQs

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(PhysOrg.com) -- Children who were resuscitated at birth have increased risk of low intelligence quotient (IQ) at age eight years, even if they were apparently healthy in the 28 days (neonatal period) following birth. The findings are reported in an Article published Online First and in an upcoming edition of The Lancet, by Dr David Odd in the Neonatal Intensive Care Unit at Southmead Hospital and Clinical Lecturer in Paediatrics at Clinical Science at North Bristol.

The authors studied children enrolled in the Avon Longitudinal Study of Parents and Children for their analysis. They looked at children who were resuscitated at birth but had no symptoms of encephalopathy* and had no further neonatal care (815 children), those who were resuscitated and had neonatal care for symptoms of encephalopathy (58), and the reference group who were not resuscitated, had no symptoms of encephalopathy, and received no further neonatal care (10,609). Brain

function was assessed at a median age of 8.6 years, and a low IQ score was assessed as being less than 80.

The researchers found that the increased risk of a low IQ score was recorded in both resuscitated infants asymptomatic for encephalopathy (65 per cent increased risk), and those with symptoms of encephalopathy (more than six-fold increased risk), compared with the reference group. However, the authors note that, since most infants who require resuscitation are asymptomatic for encephalopathy, the numbers of surviving asymptomatic children with a low IQ could have a greater effect on society than that of symptomatic infants. The proportion of children with a low IQ score attributable to hypoxia from resuscitation at birth was 3.4 per cent for asymptomatic children and 1.2 per cent of those who developed encephalopathy.

The authors conclude: "Infants who needed resuscitation, even if they did not develop encephalopathy in the neonatal period, had a substantially increased risk of a low full-scale IQ score. The data suggest that mild perinatal physiological compromise might be sufficient to cause subtle neuronal or synaptic damage, and thereby affect cognition in childhood and potentially in adulthood."

In an accompanying Comment, Professor Maureen Hack and Professor Eileen Stork, Rainbow Babies and Children's Hospital, Case Western Reserve University, Cleveland, Ohio, USA, said: "Assessment of a perinatal hypoxic event and its prognosis needs an objective measure other than the neonatal neurological presentation alone."

They say that studies which assess biochemical markers of the degree of metabolic acidosis (which indicate the severity of the oxygen starvation at birth), MRI, multiorgan dysfunction, and other factors could lend support to Odd and colleagues' findings.

More information: 'Resuscitation at birth and cognition at 8 years of age: a cohort study' by Dr David E Odd, Prof Glyn Lewis, Prof Andrew Whitelaw and Prof David Gunnell. *The Lancet*, Early Online Publication, 21 April 2009. www.thelancet.com/

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