



## **Anaesthesia and the developing brain of babies and young children**

### **(An APA Position statement for the public)**

When a child is due to have an operation or test under general anaesthesia, families are likely to have many questions and concerns. An anaesthetic is given to make the child unconscious, so that they do not see, hear or feel anything while the test or operation is being done. It is important that even the smallest babies and infants have an anaesthetic for a painful procedure, as we know that if babies experience pain during treatment while they are very young, it can affect how they recover later. However all anaesthetics are planned and given after looking carefully at the balance of risks. The benefits of the surgery or test are weighed against the risks of the drugs and procedures that will be needed. Work is always being carried out to study the best and safest ways to give anaesthetics to children.

A recent article in the New England Journal of Medicine (<http://healthpolicyandreform.nejm.org/?p=13897>) discusses research to study the effects of anaesthesia on the developing brains of babies and young children, and the need to provide more information on this subject.

This issue arose because laboratory research in very young animals has shown that drugs used for general anaesthesia can have effects on the developing brain that may be associated with learning and memory difficulties in later life. In several cases, this occurred if the anaesthetic drugs were given in high doses or for prolonged periods of time. Some of the drugs that cause problems are not used routinely in all anaesthetics in babies. At this stage, it is not clear how these experiments in animals relate to the use of general anaesthetics in humans.

Anaesthetists are aware of these concerns and are involved in a number of ongoing projects to assess the effect of anaesthetics in early life. Research that has measured school performance and learning difficulties in large numbers of children has been reassuring. For example, a recent project in Denmark has shown that a single short anaesthetic as a baby does not affect school achievement in later life. Another study compared twins, one of whom had an anaesthetic in early life, and showed no difference between them in educational performance later on.

A large study is currently taking place in many countries around the world, including the UK, to compare the effects of different anaesthetics in young babies and check for any adverse effects in later life. Results from this study will not be known until 2017.

A project in the USA called SmartTots has additional information for families on their website (<http://www.smarttots.org/familyResourceCenter.html>). The advice of this group and that of the Association of Paediatric Anaesthetists of Great Britain and Ireland is that there is currently no direct evidence that anaesthetics are unsafe for children. Children have general anaesthesia if it is needed to perform surgery or tests that are important for their overall health. Avoiding or delaying surgery may represent a much greater risk for your child's well-being.

Anaesthetists closely monitor every child having an anaesthetic to ensure that they are receiving the level of anaesthesia and pain relief that is appropriate for their general health and the type of surgery they need. As more information becomes available, the ways in which anaesthetics are given to babies and children will continue to be adapted to provide the safest and best possible treatment.

***If your baby or young child is to undergo surgery you will be able to discuss any concerns you have with their anaesthetist, and work out the best decisions for your child.***

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