Anaesthesia may harm memory, study says

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Credit: Public Domain

General anaesthesia before the age of one may impair memory later in childhood, possibly life-long, a study said Monday.

This was the conclusion of scientists who compared the recollection skills of two groups of children—some who had undergone anaesthesia in infancy and others who had not.

The children, aged six to 11 and divided into two groups of 28 each,

were tested over a period of 10 months for their ability to recollect specific drawings and details therein.

The children who had been anaesthetised as babies had about 28 percent less recollection on average than their peers, and scored 20 percent lower in tests that assessed how much detail they could remember about the drawings.

"The children did not differ in tests measuring intelligence or behaviour, but those who had received anaesthesia had significantly lower recollection scores," said a media summary provided by the journal *Neuropsychopharmacology*, which published the results.

Recollection plays a role in autobiographical memory, classroom learning and reading comprehension.

"Thus, even subtle recollection deficits may have immediate consequences and reduce the child's potential to learn over time, which future studies should examine more closely," wrote the University of California team.

They found no difference between children who had been anaesthetised only once and those put under several times.

The team observed no discernable effect of anaesthesia on familiarity—a second function of memory which evokes a sense of an experience as opposed to recollection, which deals with the details.

In a parallel study, the same researchers showed that 33 rats put under general anaesthesia during their first week of life also suffered long-term deficits in recollecting odours, compared to never-anaesthetised rats.

None of the rats had suffered any injury, which the scientists took to

prove it was the anaesthesia that affected memory and not any condition which had necessitated the anaesthesia for surgery, the scientists said.

As children cannot be anaesthetised for no reason, the team could not conclusively rule out the reason for the surgery as the cause of the memory impairment. But they said their observations in rats are likely to hold true in humans.

Deficit may be 'life-long'

Other studies have shown that anaesthesia can kill brain cells and affect the working of synapses, but its impact on human memory has been unclear.

Further research is needed to determine how long the impairment will last, but study co-author Greg Stratmann said rat studies "suggest that the deficit is life-long".

"We've never seen the deficit go away in rats. In fact, we have seen it get worse over time," he told AFP by email.

It is also not known whether anaesthesia might have a similar brain effect when given to older children or adults.

Stratmann cautioned against drawing far-reaching conclusions from this single study.

"However, these findings should get you thinking about whether an anaesthetic that may previously have been considered harmless is really necessary.

"I am talking about imaging procedures and other non-surgical procedures that may currently be done under anaesthesia for the sake of

convenience. It is possible that some anaesthetics in young children can be avoided. This should be done whenever possible."