NEWS IN BRIEF

The World's First Gene-edited Babies

Why is Chinese scientist He Jiankui making headlines round the world? Is what he has done, outrageous, naive or just plain callous? There has been pandemonium in the scientific community since this Chinese scientist presented his data of creating the world's first gene-edited twins, in 2nd International Summit of Human Genome Editing. What did He actually do?

He has tried to create babies resistant to HIV infection. He collected sperms of father who were HIV-positive and injected them into the ova of the mothers who were HIV-negative. While injecting the sperms, he also injected the CRISPR-Cas9 enzymes. These enzymes were targeted at deleting the gene *CCR5*. Deletion of this gene is known to produce resistance to the HIV virus.

Scientists are unhappy with He's work for many reasons. First, CRISPR-Cas9 may cause unintended off-target mutations, the effects of which are as yet unknown. To his credit, He has tried to check for unintended mutations and did not find anything very significant. Second, the babies may be a mosaic of gene-edited and non-edited cells, rendering the effort to be futile. Third, deletions of CCR5 in mice have been shown to enhance cognitive functions. Gene editing for enhancing qualities in humans is a pandora box of ethical conundrums.

More importantly, unregulated use of CRISPR-Cas9 may stall its use in the development of gene-edited babies in other serious and untreatable illnesses. (*Nature 28 November 2018*)

First Uterine Transplant From Deceased Donor

A Brazilian woman suffering from congenital uterine absence received a uterine transplant from a 45-year-old mother of three who died due to a subarachnoid hemorrhage. Post-transplant, the recipient was put on immunosuppressive drugs, including prednisolone and thymoglobulin. This was later changed to tacrolimus and mycophenolate mofetil, and five months later to azathioprine. Menstruation commenced after 37 days of transplant. She then underwent an uneventful pregnancy after *in-vitro* fertilization and delivered a healthy baby. No rejection occurred after transplantation or during pregnancy. The uterus was removed after delivery and immunosuppressants were stopped. The baby is healthy after one year of birth.

The feat is remarkable for many reasons. This pregnancy has taught us a lot about immune interactions between the uterus and the body. About a dozen living donor uterine transplants have been successful so far. However, all previous attempts to transplant from a dead donor had failed. In countries with legal or ethical barriers to surrogacy, this modality may be an option for women with uterine anomalies. (*The Lancet 5 December 2018*)

Acute Flaccid Myelitis Outbreak in the US

In the United States, between January- and November-2018, around 80 patients reported with acute flaccid myelitis. The Centers for Disease Control (CDC, USA) is concerned because this is a three-fold higher incidence compared to last year. What exactly is acute flaccid myelitis. This is an acute onset flaccid weakness of one or more extremities, and is seen mostly in children. Diagnostic criteria include Magnetic resonance imaging findings of spinal cord lesions largely involving the grey matter spanning one or more spinal segments along with CSF pleocytosis of >5 WBC/cm^3.

In this series, most children had a brief febrile illness in the preceding 4 weeks. CSF pleocytosis occurred with a median of 103 cells (range 6-814 cells) with a lymphocyte predominance and mean protein and glucose of 47 mg/dL and 59 mg/dL, respectively. Eleven children tested positive for enterovirus (EV) A71, 14 for EV-D68, and 13 for other viruses, including parechovirus and rhinovirus.

Despite extensive testing by the CDC, no definitive etiology has been pinpointed. Peculiarly the commonest involvement has been of both upper limbs seen in 47.5%; lower limb involvement occured only in 8.8%, and all four limbs were involved in 28.8%. Fifty nine percent required intensive care but no death have been reported. (*MMWR 16 November 2018*)

AAP Guidelines for Toys

The festival season is here and most of the Western world is busy buying toys for their children. What is the real purpose of toys? The American Academy of Pediatrics (AAP) has provided some wise guidelines on why we buy toys and which toys to buy for whom.

The deeper purpose of buying toys is to share time together with our children and build bonds. The goal must not be to enhance development in the race to compete with the neighbor's child. Over the years, there has been a steady decline in time for interaction between parents and children and increasing use of electronic devices by younger children. The long-term implications of this are yet to be understood. A recent article published in the journal *Pediatrics* estimated the prevalence of autism as 1 in 40 children in US, and most therapists for autistic children strictly restrict their screen time.

The AAP recommends toys that can be manipulated – wooden spoons, blocks and shape sorters. Avoid toys with button batteries and magnets. For children aged below three years, avoid toys with small parts on which they can choke. Toys having parts less than 3x6 cm should be avoided. Pull-toys having a string longer than 12 inches are a strangulation hazard. For children under ten years, avoid toys that need to be plugged into an electrical socket as there is a risk of electric shocks.

Limit digital screen toys. It is well known that parents and children talk less when they play with electronic toys. And finally – remember books are toys. Parents must be encouraged to read to their children. Books are a great way to foster creativity. (*http://www.aappublications.org/news/2018/12/03toyspp120318*)

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