Concerns with gene editing

Why in news?

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US scientists corrected disease-causing gene mutation in a human embryo.

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What is the experiment about?

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- CRISPR/Cas9 is a gene editing technology which has been used.
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- It is used by researchers to replace short DNA sequences with genetic material of their choice.
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- Scientists proved that there is also a chance to knock out disease-causing genetic mutations that parents pass on to their children.
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- Mutations linked to diseases like breast and ovarian cancers or cystic fibrosis can also be eliminated.
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- Correcting the mutation in the gene would also prevent the mutation from being passed on to future generations.
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What are the issues with the experiment?

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- One of its controversial applications is modifying the genes of eggs, sperm, or early embryos to alter a human life.
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- This could result in “designer babies” i.e the ability to create smarter or more athletic humans.
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- The implications of introducing modified genomes into the human gene pool are vastly unknown.
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- Creating children with preferred traits also raised bio-ethical concerns as it goes against natural process.
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- If this technology becomes a realistic, the wealthy would be able to afford the selection of desirable traits in their offspring, while those of lower socioeconomic standing would not be able to access the same options.
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- As a result, economic divisions may grow into genetic divisions, with social distinctions delineating enhanced individuals from unenhanced individuals.
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What should be done?

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- Experiments to change the human germ line are banned in much of Europe but are legal in the US and China.
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- Though they are in a premature stage, it is to be monitored that the scientific community suggest unavoidable legislative challenges as more advances are made.
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- It is also to be noted before placing a blanket ban that every advancement in reproductive health, starting from in vitro fertilisation to the recent birth of a baby through the “three parent” technique for mitochondria-related disease, has initially been stuck in controversy.
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Source: The Hindu, Live Mint

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