

5. Virtual Autopsy

Prelims Level: Newer Invention

Mains Level: GS-III Science & Technology- Developments and their Applications, and effects in Everyday Life Achievements of Indians in Science & Technology: Indigenization of Technology and developing New Technology

Why in News?

- India will be the first country in South and Southeast Asia to carry out these “virtual autopsies

Virtual Autopsy:

- An autopsy (Postmortem Examination, Autopsia Cadaverum, or Obduction) is a highly specialized surgical procedure that consists of a thorough examination of a corpse to determine the cause and manner of death and to evaluate any disease or injury that may be present. Virtopsy is a word combining ‘virtual’ and ‘autopsy’ ... for the purpose of autopsy and to find the cause of the death. Virtopsy can be employed as an alternative to standard autopsies for broad and systemic examination of the whole body as it is less time consuming, aids better diagnosis, and renders respect to religious sentiments.”
- In a virtual autopsy, doctors use radiation to examine the innards to reach a conclusion about the cause of death. A CT or an MRI machine could be used, in the same way that they are used to scan a living human’s body.

Need:

- According to a paper in The Lancet, the advent of virtual autopsy owes to the “Longstanding public objection to dissection of cadavers (that) re-emerged in the UK as a major issue after organ retention scandals in the late 1990s.
- Some groups —notably Jewish and Muslim communities — have religious objections to autopsy, and demand for a minimally-invasive alternative has increased.” (‘Post-mortem imaging as an alternative to autopsy in the diagnosis of adult deaths: a validation study’: 2012, Ian S D Roberts et. al)
- A virtual autopsy is also faster than a traditional one — 30 minutes against 2½ hours, and more cost-effective.

International Examples:

- Virtual autopsy began in Sweden, but is now a “standard technique” in major centres in Japan, the US, Australia, and many European countries.

Accuracy of Virtual Autopsy:

- In 2018, in an article in the Journal of Pathology Informatics, Russian and Italian scientists compared the results of virtual autopsy and Traditional Post-Mortem.
- “Out of 23 cases for which the traditional post mortem examination found a cause of death, 15 (65%) were diagnosed correctly using virtual autopsy, these cases were considered as true positives.
- For one case for which the cause of death was unascertained, the same result was also obtained during the virtual autopsy.
- This case was considered as true negative. Overall, in 16/25 (64%) cases, virtual autopsy results matched that of the traditional autopsy,” they concluded.

