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Abstract

This paper aims to talk about the medical technologies and advancements the world has achieved today, in the field of forensic science. The paper will carry the meaning, processes, history and future of technologies like DNA profiling, Brain mapping, Narco Analysis, Patent protection, Generic drugs, Organ transplantation, Sex determination Test, Experimentation on human beings etc.; The laws and policies made in India which regulate the technologies will also be covered as technologies though are made to do good but can be misused, so how the government look towards this scenario and what steps they have taken by making technology regulating laws to control the adverse effects the technology can give to the society and how are they admissible in the court of law. Every different medical technology dealt with in this paper is provided with judicial decisions.

The paper will conduct a secondary research on surrogacy, abortion, and artificial reproductive technologies, that what are the risks associated with them and what are the advantages, uses, criticism.

Keywords: artificial reproductive technologies, DNA profiling, Brain mapping, Narco Analysis, Patent protection, Generic drugs, Organ transplantation, Sex determination Test, Experimentation on human beings.

Introduction

Medical technology has broad meaning it would mean not only inventions or developments by using science in improving medical conditions but also applying scientific methods to monitor health conditions of people. Not every country of the world has access to all kinds of medical technologies, so people move across different countries just for medical solutions as health problems today has increased by a great extent.

Medical Technology and Forensic Science

DNA Profiling: Deoxyribonucleic acid in short DNA present in cells of every human body, this technology of DNA Testing can be done and used in many ways:

- DNA fingerprinting is used in legal cases as evidence to show parentage or fingerprints left on crime scene.
- It can be used in identifying dead body which has been damaged badly.
- It also helps in identifying hereditary passed diseases.

- To control the usage of DNA Testing the legislation has passed a bill called the DNA Based Technology (use and regulation) bill, 2017.

Admissibility of DNA in India

Under section 53 of the code of civil procedure, 1973 a police officer who reasonably believes that medical examination of an arrested person will provide for evidence as commission of offence can request a medical practitioner to conduct such test on him.

Section 53A of the code of civil procedure, 1973 provides that a police officer who reasonably believes that medical examination of an arrested person who is accused of rape can request a medical practitioner to conduct such test on him if it will provide for evidence as commission of offence.

Judicial Aspect

In B Vandana Kumari Vs. P Praveen Kumar, the Andhra Pradesh high court said that a court can under matrimonial matters make a person to go under DNA test but not violating article 21.

In Sunil Eknath Trambake Vs. Leelavati Sunil Trambake, the court said that DNA Testing should not be used as a normal course for every case but should be used only in cases where it is absolutely necessary to conduct such test to resolve the case.

In Sharda Vs. Dharmal the court held that DNA testing does not violate right to life, or right to privacy.

In Selvi Vs. State of Karnataka, it was held that article 20(3) does not get violated for self-incrimination if DNA is done for the purpose of identification.

Brain Mapping

Meaning: Brain mapping test works when a suspected person is shown certain images or objects, or sounds related to a crime scene and when he looks at them there will be a change in his heart rate which is registered through sensors which monitors the activity in brain. It was invented by Doctor Lawrence an American neurologist he called it brain-wave fingerprinting.

Judicial Usage: Santokben sharmabhai jadeja vs. state of Gujrat, the court negated the question raised by the accused that the permission or acceptance must be taken from the accused person before subjecting him to brain mapping test, but court said that the accused is likely to deny to give permission to the test as it can reveal his crime if he has done it so consent of accused is not required in this as taking the accused to the laboratory may be involuntary but the revelation from the test can be quite voluntary so it does not compose compelling a person to provide for evidence

Narco Test

Definition: Narco-analysis test is in which a person is drugged in such a way that he remains sub conscious so that he can understand the questions which are being asked to him and he be able to answer them, which re then recorded but this test is not taken as a reliable source as it is said that the answers get manipulated out of the accused. The practitioners believe that a person will answer truth once they are drugged.

Notable Judicial Pronouncements of India

In the case of Dinesh Dalmia vs. State, which was a 2006 judgment, it was held that an accused subjected to narco analysis will not be considered as testimony using compulsion.

In judgment of a case of 2004 related to fake stamp paper it was head by the Bombay high court that if an accused is investigated through narco analysis test then it does men that his right against self-incrimination gets violated. Statements coming out by the test does not amount to admissible evidential proof in the court.

In Ramchandra reddy and ors. Vs. state of Maharashtra, the Bombay high court held that the technological tests like narco analysis, brain mapping etc. are legal. It allows conducting the scientific tests on the accused, but it said that such evidence is not admissible in the court they can be used to help investigation processes. The court allowed it because it said that usually investigations are more torturous than such test these tests have least body and mind harm.

Video Spectral Comparator 2000: In this a machine is used by the forensic expert or the investigators in which they can check paper and find out the origin of the paper which can not be detected in that way by a naked eye as the machine can do even if the paper is destroyed by water or fire.

Medical Technologies and Drugs

Patent Protection

A patent is a right to the owner to let him make, sell, use the invention he has made for period of up to 20 years. A Patented invention can exclusively be held by the person who holds the right. Patent like other properties can be transferred i.e., can be sold or mortgaged, or can also be abandoned.

Case Law

Dhanpat Seth and others vs. nil Kamal plastic crates ltd. (2008 (36) PTC 123 (HP) (DB) In this case the defendant has filed an application for reevoking the patent granted to the petitioner because he said that the

agricultural device which was made by the plaintiff was not an invention under section 2(j) of the Indian Patent Act, the court observed that when a product is already made and it involves certain process in making it but if any person has invented even a single new step in the process of making the same product then that is an invention. But the court added that granting a patent does not along with it carry right of injunction and that the device made by the plaintiff in this case was a duplication of the product already made so there was no invention in this case and hence the plaintiff was rejected with the right of injunction even if he has come up with a new step for the same product.

Life Saving Drugs

Drugs can be differentiated in many ways; the main distinction is through who can control it which starts with prescription drugs which means that these drugs cannot be dispensed unless recommended by a physician and then comes over the counter drugs which consumer can by himself attain. Drugs can also be classified by route of administration, mode of action, therapeutic effects etc.

Generic Drugs

Generic drugs are those which contain the same chemical substance that an original drug had when it was under patent rights now when the patents expire then using the same chemical substance generic drugs are made, these may differ in manufacturing process or in their color, taste, packaging etc. generic drugs are under the control of the

Medical Technologies in New Areas

- Government.
- Organ Transplantation
- Back in 1950 the first successful organ transplant of kidney was performed by Dr. Richard Lawler. For organ transplantation there needs a donor and a recipient, one who gives any organ of his body to some other person who does not have that organ, or his that particular organ is ill. When an organ is transported into same persons body

whose organ it is then it is called auto graft.

- A donor can be living and deceased as well. The Indian law which governs organ transplantation is “Transplantation of Human Organs Act 1994”. It regulates illegal and legal removal of organs.

Experimentation on Human Beings

Medicines needs to go through human trials after being tested on animals through in vitro or biochemical ways. This indeed is needed for cure and to know that the medicine would or would not give the desired result is one of the most unethical way to test on living beings. Before 1970's it was never even considered to be unethical as the prisoners were used for such experimentation without their consent but now people have come up with human rights issues protecting some from such experimentation.

Sex Determination Test

Sex determination test is a very commonly used test, it tells the sexual characteristics of an unborn organism like whether it would be a male or female, there are many ways to conduct this test e.g., Ultrasound test, gender DNA test, Chorionic Villus Sampling etc. though this is banned in India for humans due to societal problems like female feticide.

Designer Baby

A human embryo whose genes can be modified according to the desires of the parents or the scientists can be called a designer baby. There are many ways to conduct this namely pre-implantation genetic diagnosis or germline engineering. The desirable traits can be like lower disease catching, more immunities against some illness and it could be gender selection as well, intelligence, personality etc.

Everything can be carried out from making of gametes then fusion and developing it into an embryo.

Abortion

In most of the countries a middle approach is adopted towards practicing abortion, in Roe VS. Wade the Supreme court of United States said that abortion is a right to privacy

that it is a fundamental right and it shall be exercised under some circumstances such as if mother's life is endangered due to that pregnancy or if the Child to be born will carry some diseases or illness or the Child was resultant of a rape or even to exercise birth control for economic and social reasons.

In India Medical Termination of Pregnancy Act, 1971 allows abortion up to 12 weeks of pregnancy and up till 20 weeks if there are higher risks in the pregnancy but no abortion can be carried out in India after 20 weeks.

In the case of Suchitra Srivastava Vs. Chandigarh Administrator, an orphan girl who was also mentally challenged got pregnant by some anonymous person in Chandigarh, so the orphanage authority filled a case in High Court for abolishing the pregnancy for her sake as she would not be able to take care of herself and the baby financially and mentally as well even though she wanted to carry the Child. The high Court allowed the abortion despite of her wish to carry the Child but for her sake. The case went to Supreme court and the Supreme court held that according to MTP Act a major mentally retarded person has freedom to choose and so she could make her choice and no one can force her to abort her baby against her will and also the baby was beyond 20 weeks so supreme court rejected the order of the high Court allowing the girl to carry her pregnancy.

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