

The Pre-Conception and Pre-Natal Diagnostic Techniques Act and its implication on advancement of ultrasound in anaesthesiology; time to change mindsets rather than laws

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ABSTRACT

Ultrasonography (USG) has a continuously expanding role in anaesthesiology, critical care and pain management and has enhanced and refined patient care. The Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act was established to counter the persistent problem of female foeticide in India. This unique problem which seems to be rooted in our social structure has indirectly impeded the evolution of USG as a widespread tool in medicine in our country. This brief review is aimed at highlighting the expanding role of USG in anaesthesia practice and training, nuances of the PCPNDT act and its implications on the growth and management of ultrasound technology in anaesthesia, in India.

Key words: Female foeticide, Pre-Conception and Pre-Natal Diagnostic Techniques Act, Pre-Conception and Pre-Natal Diagnostic Techniques and anaesthesia, sex determination, ultrasonography

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INTRODUCTION

Ultrasonography (USG) has been an established tool in diagnostic radiology and obstetrics for many years. The specialty of anaesthesiology along with critical care and pain management has also evolved to incorporate this technology into routine practice, to enhance and refine patient care.^[1,2] The Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act of 1994 and 2003 has been in place to regulate an age-old and persistent social problem of female foeticide in India.^[3-5] This unique problem of our country which seems to be rooted in our social structure has indirectly impeded the evolution of USG as a widespread tool in medical and anaesthesia practice and has perhaps put us at a disadvantage in terms of being able to maintain standards of care which are already established in developed countries.

USG AND ANAESTHESIA

Modern anaesthesia practice is incomplete without the use of USG. It would be 'safe' to state that it would be relatively 'unsafe' without it. The specialty

has traditionally been heavily reliant on anatomical and landmark-based procedures and practices. The level of accuracy and safety of procedures conferred with USG very well justifies its use.^[1,6] There is ample amount of literature describing the wide range of procedures and assessment techniques it encompasses within its scope. The most common uses in anaesthesia include peripheral nerve blocks, vascular cannulations, airway assessment and echocardiography in cardiac anaesthesiology.^[1,2] Allied specialties such as critical care, emergency medicine and interventional pain management are also actively using USG for various purposes such as lung ultrasound and focused assessment with USG in

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trauma (FAST).^[2,7] The technology and its association with medical specialties especially anaesthesia is here to stay and will definitely evolve further to include more and more aspects.

FEMALE FOETICIDE IN INDIA

Historically, India has witnessed many regressive and socially degrading practices such as sati, child marriage, dowry and female foeticide, to name a few. Many of these have been completely or nearly abolished following a systematic and gradual legal and social effort.^[8,9] It is interesting to note that it was not very easy to get rid of these practices as their origins stem from the very fabric of our early social structure where women had a particular role which was considered 'not equal' to that of men. Female foeticide is one of the manifestations of this 'social mindset' which has shown extreme resistance and has survived and crept into this modern era. Despite numerous interventions by the government and social organisations, our country has persistently observed skewed sex ratios over the years.^[10,11] One of the regulations for curbing this menace was the Pre-Natal Diagnostic Technique (PNDT) act of 1994 which was amended in 2003 to the PCPNDT act.

THE PCPNDT ACT

The PNDT act was passed in 1994 to curb female foeticide by regulating and banning the practice of sex determination/selection and abortion using pre-natal techniques such as amniotic fluid and chorionic villi sampling.^[3] Due to the apparent ineffectiveness of this law to improve sex ratios over the years, an amendment to the act was made in 2003 which incorporated USG clinics into the ambit of this law.^[4,11,12] Under this law, all centres which have any equipment (including USG) which can potentially detect sex of foetus pre-conception or pre-natal have to be registered with the appropriate authorities and could be penalised for taking part or being involved in sex determination of foetus.^[4,5] The families of pregnant woman who ask for sex determination are also liable to be punished. Not adhering to the provisions of this act could warrant punishment in the form of up to 3 years imprisonment and up to Rs 10,000 fine, and on repeat offence up to 5 years imprisonment and up to Rs 50,000 fine. The name of the registered practitioner would be removed from state council for 5 years if guilty and permanently if repeat offence is committed under section 23 of the act.^[5]

PCPNDT ACT AND ANAESTHESIA

All facilities and clinics including hospitals/intensive care units or wherever a USG machine is used need to register with the appropriate authorities at least 3 months in advance, irrespective of whether the machine is being used for pre-natal diagnostic tests or not.^[5] All doctors using the USG machine also need to be registered and should be appropriately qualified to perform sonography. This law basically centres around radiologists/sonologists and obstetricians who are regularly involved with pre-natal or pre-conception testing.

There is also a lot of debate on the qualification to perform sonography and the training required. The act defines a 'sonologist or imaging specialist' as a doctor having a post-graduate degree or diploma, or 6 months of training or 1 year of experience in USG or image scanning.^[4] In this context, the place and role of anaesthesiologists, surgeons, cardiologists, intensive care and trauma physicians along with other specialist physicians within this law are ambiguous and a matter of continuous debate and changing laws.^[12] According to a Delhi High Court ruling in 2016, doctors and institutes owning and using a USG machine may register and could be exempt from complying with the provisions of the PCPNDT Act and other paperwork if they provide a declaration or undertaking stating that 'the machine is not intended for conducting pre-natal diagnostic procedures and to not use or allow the use of the same for pre-natal diagnostic procedures'.^[13] This should also be displayed clearly outside the premises where USG is being used.

Although the PCPNDT law was brought about with a good intention of regulating and curbing sex determination and illegal abortions, it has inadvertently put stressful regulations on medical practitioners who wish to use USG for purposes other than pre-natal diagnostics. Lack of awareness and fear of legal ramifications further deter departments such as anaesthesiology and intensive care to get into the process of obtaining and registering for ultrasound machines.^[10] And even after venturing into the process, it may sometimes take long and could be frustrating. Similar restrictions are also imposed on USG vendors and manufacturers, thus causing hindrances in conducting workshops and other educational demonstrations. The scope and expansion of the use of USG as a technology in India has somewhat been curtailed due to the provisions of this act.^[10,11]

STETHOSCOPE OF THE FUTURE

Ultrasound has previously been called the 'stethoscope of the future' and the Western world has almost reached that stage.^[14] Point of care USG (POCUS) is a new concept being utilised in critical care practice. American residency programmes have particular guidelines to incorporate USG training for peri-operative use, and they ensure basic USG competency at trainee level as well.^[2] Numerous handheld USG devices are now being used and have eased the process of transporting and handling bulky machines which were conventionally used.^[15,16] Ironically, mobile USG machines and transportable machines are prohibited within the provisions of the PCPNDT Act,^[4,5] which is taking us further away from the amazing possibilities in the world of smartphone-compatible USG technology.^[17]

Many procedures and techniques in anaesthesia such as regional nerve blocks and vascular cannulations are recurring topics in research and scientific publications. USG has become a standard adjunct to these and has opened up numerous newer techniques such as fascial plane blocks which would be near impossible using conventional methods.^[1,18] Many centres in India still do not have USG at their disposal due to numerous factors such as cost and availability which is further exacerbated by the impact of the PCPNDT Act. Research conducted using conventional landmark and nerve-stimulator-based techniques holds much lesser value compared with USG and is unlikely to be published in the modern scientific era.

POSSIBLE SOLUTIONS

It will take a massive social and political effort and some amount of time to entirely eliminate the origin of the law itself, that is, female foeticide. But anaesthesiologists as part of the civil society can contribute to the spread of social awareness about gender equality. The government is also advocating this cause at a national level with female-child-oriented national programmes and insurance schemes.^[19]

National anaesthesiology bodies and regional anaesthesia societies can jointly appeal to the union health ministry to consider easier PCPNDT registration, ease of day-to-day documentation, and to facilitate portability, especially when operating only high-frequency linear probes for non-obstetric, anaesthesia-related uses.

Information and nuances of the PCPNDT Act should be spread among colleagues and peers to promote and encourage institutions to recruit USG units. Institutes or individuals wishing to obtain USG machines should contact their local PCPNDT office and get appropriate information about the process of application and provisions which have to be adhered to. Paper work should be in place with good record keeping of all USG-related usage. All scans on pregnant ladies should have a form F duly filled and submitted online. A monthly report should be sent to the appropriate authorities by the fifth of each month. The law hopefully will become more relaxed in the future and allow more free utilisation of this technology without the fear of penalisation.

CONCLUSION

It is important to change mindsets and probe into root causes rather than 'kill the messenger'. Perhaps more focused laws and stricter regulation of illegal abortions, and less focus on the technology. USG has become the standard of care and is going to be an integral and essential part of anaesthesia and critical care practice in the near future. Indian anaesthesiologists have to be patient and work within the framework of the PCPNDT law, to strike a balance between adhering to the provisions while making the best use of this technology.

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