AIMS For a better birth...

Who says ultrasound is safe?

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In light of the growing trend for making keepsake videos and DVDs of babies in utero, AIMS Chair Beverley Beech examines the worrying evidence concerning the safety of prolonged ultrasound with modern high-powered equipment

If you are prescribed a drug during pregnancy or labour, you can be somewhat reassured that the drug was subjected to a series of trials to determine whether it works and is safe, and what adverse effects it may have. But most women are never told that ultrasound has never been subjected to any such rigorous trials.

In 1955, Glasgow obstetrician Ian Donald realised that the machine that dockyard workers were using to detect cracks in the hull of a submarine could be used to detect tumours. It did not take long before this technique was used to examine the contents of a woman's uterus. Some years later, Donald published a warning:

"Perhaps the time has now come... to take stock of where we are going... bearing in mind that sonar [what ultrasound was called at that time]... must never lose [its] subservience to the medical art and the paramount importance of the patient... Viewed with this sense of proportion sonar comes as a commodity only, although with many uses. Out of control it can be an obsession, a tail that wags the dog. Sonar is not a new medical religion or an end in itself. A tool exploited for its own sake is no better than a saw given to a small boy for cutting wood, who must presently look around the house for suitable objects of furniture inviting amputation...".

Little notice was taken of this warning, and ultrasound was promoted and enthusiastically sold to trusting women and healthcare providers all over the world. The question of ultrasound safety was barely raised and, when there was public awareness, the promoters were quick to dismiss these concerns. We know that Professor Stuart Campbell (the most vociferous ultrasound propagandist) attended the same Medical Research Council conference in 1985 as we did, where a number of experts made their anxieties clear. Yet, Professor Campbell persists in his claims of safety:

"Some 100 million people throughout the world are walking around having had scans before they were born, and there has never been a shred of evidence that it does any harm."[1]

No one then - or since - has thought to ask whether that statement was based on any research evidence. The press was (and still is) happy to accept without challenge a statement made by a medical man who, as one of the most enthusiastic promoters of ultrasound, can hardly be unbiased.

The amount spent by health providers on ultrasound is awesome. Marsden Wagner says:

*"In France in one year, three million ultrasound examinations were done on 700,000 pregnant women - an average of more than four scans per pregnancy. These examinations cost French taxpayers more than all other therapeutic and diagnostic procedures done on these pregnant woman. In Australia, where the health service pays for four routine scans, in one recent year, billing for obstetrical ultrasound was $60 million Australian dollars."*2

The widespread assumption of safety has led researchers in fetal behaviour to assure women volunteering for clinical trials that ultrasound exposure of one to one-and-a-half hours (sometimes on more than one occasion) is safe for their unborn babies - yet we know of no follow-up of these exposed children. Any question of the value of ultrasound, or of the need to carry out long-term research to determine the risks, are ignored - until, that is, ultrasound enthusiasts began offering women the opportunity to have what the Americans call 'keepsake videos'.

Take home a video or DVD of your baby

Commercial companies have embarked on some hard-sell designed to tug at the heartstrings. Babybond, which was advertised in the NCT's magazine Bumps and Babies as the *"original ultrasound bonding scan"*, is based throughout the country. It claims to promote bonding despite the fact that no one has produced any such findings from research on 4D ultrasound scanning. Neither is any mention made of the risk of serious problems due to ultrasound.

Another company called Create Health, set up by Professor Campbell, also uses advertising copy that tugs at the heartstrings:

"4D just means that these life-like pictures can be seen to move in real time so the activity of the baby inside your womb can be studied... Good pictures of your baby can be obtained throughout your pregnancy. In early pregnancy you will see the whole baby moving its arms and legs, but details of the face are indistinct. Later in pregnancy, you will see clear images of your baby's features..."

Using the latest high-powered ultrasound equipment (which, in the US, can cost more than £80,000), women can arrange to have a video of their moving fetus in 4D. Unlike the old black-and-white fuzzy stills of what might be a baby, the new, powerful 4D ultrasound images clearly show your baby in colour and with the baby moving around. So, pictures of the baby in the womb sucking its thumb were quickly advertised to excited, expectant, parents.

Worried professionals

A number of private companies have been quick to set up these money-making services even though exposure to highintensity ultrasound has never been properly researched for any possible risks to either fetus or mother. This proved to be too much for some members of the medical profession. Martin

Whittle, professor of fetal medicine and chair of the Royal College of Obstetricians and Gynaecologists' working party on ultrasound was quoted in The Sunday Times as saying:

"We don't know the effects of repeated ultrasound".

The US Food and Drug Administration (FDA) has declared that ultrasound is a form of energy that can't be considered harmless, even at low levels, and is considering regulatory action against the commercial companies that are offering ultrasound videos in the US.

Dr John Steed, head of obstetrics and gynaecology at the Virginia Commonwealth University School of Medicine said that, although there is no proof that ultrasound is damaging, "We used to think that about X-rays". (Indeed, X-rays were vigorously promoted for viewing the baby in the womb, and it was many years later that research showed that X-ray exposure in utero caused cancer in the children who were exposed as babies).

Nevertheless, there appear to be no such concerns in Professor Campbell's mind. Having created a company to offer these keepsake videos (at a cost of £200 a time), he was asked for his views: "A great deal of research has been done over the past 30 years to investigate if fetal ultrasound has any effect on the baby and there is no evidence whatsoever of harm."

However, as a professor of obstetrics and the leading protagonist for ultrasound, it is astonishing that he seems not to have considered the following studies.

Obstetricians in Michigan[3] studied 57 women who were at risk of giving birth prematurely. Half were given a weekly ultrasound examination; the rest received pelvic examinations to assess the state of their cervix. Preterm labour was more than doubled in the ultrasound group - 52 per cent - compared with 25 per cent in the controls. Although this was a small-scale study, this statistical difference was unlikely to have emerged by chance.

In a large randomised controlled trial from Helsinki[4] 9000 women were randomly divided into two groups. The women in one group were scanned at 16-20 weeks whereas the women in the other group were not. Comparing the results from these groups revealed 20 miscarriages in the scanned group and none in the controls.

A later study carried out in London[5] randomised 2475 women to receive routine Doppler ultrasound examination of the umbilical and uterine arteries at 19-22 weeks and at 32 weeks of pregnancy compared with women who received standard care without Doppler ultrasound. There were 16 perinatal deaths of normally formed infants in the Doppler group compared with four in the standard-care group.

It is not only pregnant women receiving antenatal care who are at risk. Physiotherapists use ultrasound to treat a number of conditions. A study done in Helsinki[6] found that, if the physiotherapist was pregnant, handling ultrasound equipment for at least 20 hours a week significantly increased the risk of a spontaneous abortion.

Also, the risk of spontaneous abortions in practitioners after the tenth week of pregnancy was significantly increased when they gave deep-heat treatments (for strain injuries or as mobilisation therapy) for more than five hours a week, and ultrasound for more than 10 hours a week.

One can only wonder what exactly is Professor Campbell's definition of harm?

Editor's note: AIMS has written the Advertising Standards Council to complain about misleading advertising and to Professor Campbell, asking him to justify his claims in light of the research mentioned above. Watch this space ...

References

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