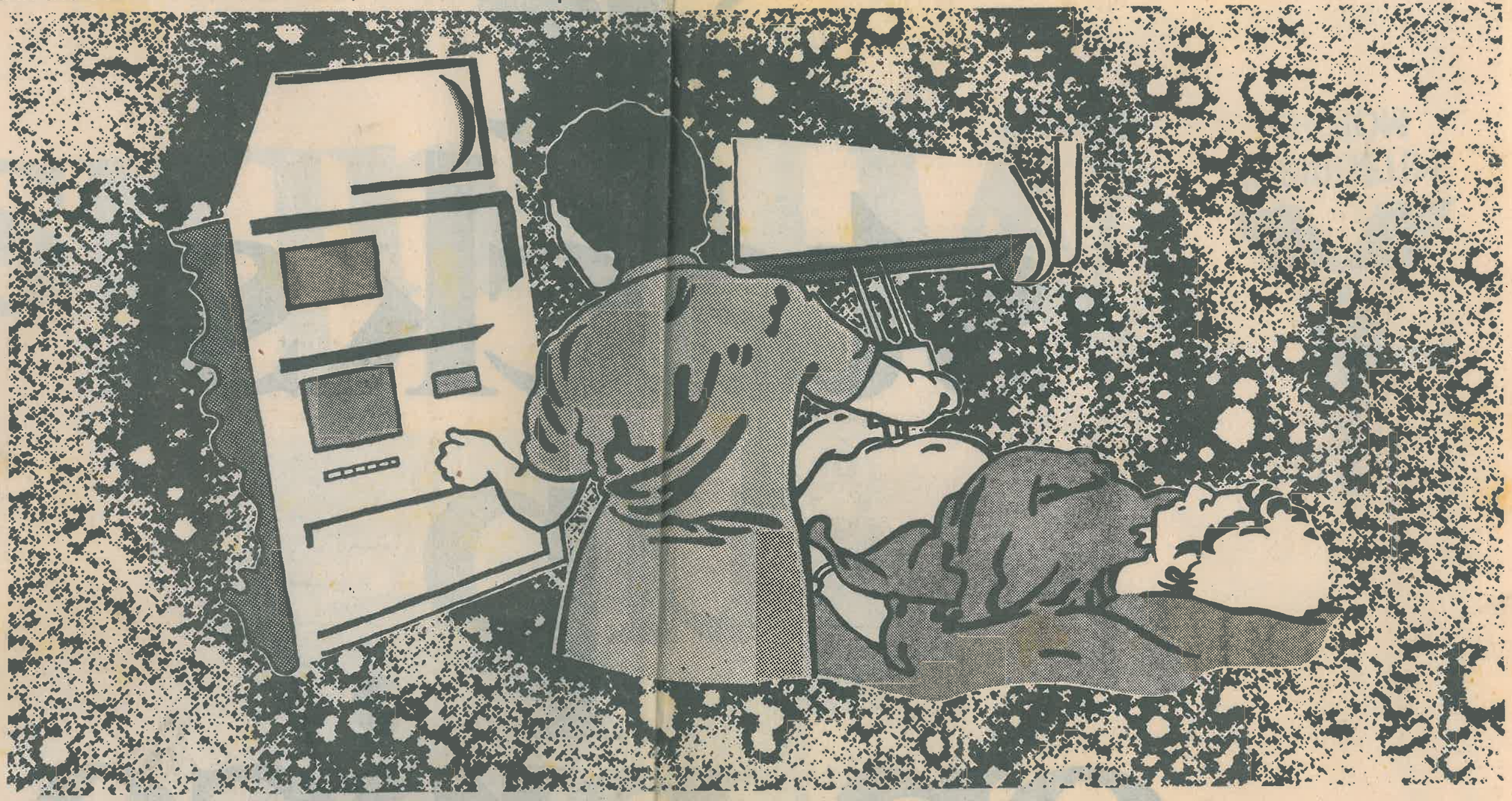
Medical advances in diagnosing fetal abnormalities were discussed at a meeting of international perinatal experts in Taupo recently. It seems New Zealand is lagging behind in the use of these advances, LYN BARNES reports.



Testing times for mothers

IN THIS day and age everyone expects a "perfect" baby. Today the diagnostic procedures available to detect whether a baby is "abnormal" are good but not infallible. There are also consumer concerns about safety and intervention. So where do we go from here?

Optimism pervades, but with caution. This was evident from the well-supported two-day meeting of perinatal medicine in Taupo this month. Perinatology covers the time from conception, through pregnancy, and a few weeks after birth.

Routine ultrasound screening — a non-invasive technique of measuring sound waves through the mother's abdomen — and amniocentesis, which is a more invasive technique requiring a sample of amniotic fluid surrounding the baby in the uterus being removed for analysis, continue to be controversial. And now there are new diagnostic techniques being used and researched around the world which are beginning to be seen here.

London's King's College lecturer, Peter Soothill advises all women to have a scan at 20 weeks to check for abnormalities. He told New Zealand obstetricians at the meeting that the features of the fetus can be seen more clearly then than at 16 weeks, which is when they are usually performed in New Zealand. This not only improves the chances of picking up any abnormalities, but it also means a later termination if a woman chooses not to go ahead with the pregnancy.

New Zealanders are still wary of scans. Abnormalities have been missed and there is the concern about their safety. Consumer groups and midwives in New Zealand do not approve of routine screening and feel more research is required to prove their efficacy and safety.

Professor Carl Weiner, another international speaker at the meeting, addressed this concern. He is Professor and Director of Maternal Fetal Medicine at the University of Iowa Hospitals and Clinics. In the United States, he claims it is purely a cost factor that ultrasound is not performed routinely. (The cost is around $180.)

As far as safety goes, Professor Weiner claims there is not a single study using diagnostic ultrasound in humans, animals or insects which has shown any adverse effects. Although there are singular studies indicating there are, he said, not one of them has been able to be reproduced.

"You add to that observation, that thousands and thousands and thousands of women have been scanned, and there has not been one change in the risk of birth defects."

A large group of women who have been scanned have been followed prospectively, and Professor Weiner claims, the only difference found is an increase in early intervention for detected abnormalities.

"And you add to that, that 1 to 3 per cent of all pregnant women will deliver a fetus with a major structural abnormality and 22 per cent will have a congenital infection. Any risk of ultrasound that exists that can't have been detected must pale in comparison to those two high risks.

"We can't say it's 100 per cent safe, but the risk has to be so infinitesimal that the potential benefit outweighs it," concludes Professor Weiner.

He admits it would not be easy to implement such a screening programme. It would have to be nationally run, well co-ordinated and carefully monitored.

The screening test does not necessarily reduce the number of amniocentesis tests carried out. However, it does target the need for amniocentesis to the higher risk group, Professor Gardiner said.

While it is currently believed that most Down's syndrome babies are conceived by women over 40, Professor Gardiner said that most are in the younger age group, because they are having more children — another important reason to have the AFP available to all women . . .

In Iowa, only a third of the women in the state choose to have the test done, he said.

New Zealand does not have a nationwide policy on ultrasound scanning, or any other diagnostic technique. It appears to be very much in the hands of the individual obstetrician or doctor. Some prefer one or two routine scans for example, while others will only refer patients for a scan if they are concerned about the pregnancy or to confirm the expected birth date.

Dr Fisher doesn't see the problem being easily resolved with regional health boards. He is also sceptical of any screening programme which may create anxiety.

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And as far as the welfare of the developing fetus goes, assuming all is okay; and the woman intends to proceed with her pregnancy, she is likely to see an integrated approach to her management. Several lectures at the perinatal meeting referred to the importance of not relying totally on technology or tests. Don't forget the mother, was the message from a senior lecturer in obstetrics and gynecology from Bristol, England David James.

This approach should please consumer and feminist groups who demand more discriminatory use of technology.

Another lecturer went so far as to suggest that obstetricians have been driven by technology and it's time to become nihilists and forget technology and accept not all babies are perfect. Kick charts and measuring the "fundus" from the pubic bone to the top of the uterus may be all some obstetricians feel comfortable with, but is it acceptable?

The concern about technology has led to a paradox which burdens consumers, said Dr Murray Jamieson, Senior Lecturer in Obstetrics and Gynecology at Auckland University's department of obstetrics and gynecology. "Consumers wish to do everything and nothing at the same time . . . (They say) 'I want to do everything to make sure the baby is 100 per cent and at the same time I don't want any of those tests or investigations'," he said.

This statement exemplifies the frustrations obstetricians and perinatalists often feel when research is criticised. However, the climate for most is encouraging and the future optimistic.

The perinatal medicine meeting was organised by the Department of Obstetrics and Gynecology at Wellington Hospital with the backing of the Royal College of Obstetrics and Gynecology.

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Another test New Zealanders have heard very little about is used widely as a screen for the more common abnormalities, namely spina bifida and Down's syndrome. Spina bifida is a defect in the fusion of the baby's spinal column and Down's syndrome is a chromosomal disorder.

It is a blood test, usually at 16 weeks, taken from the mother. If the "alpha fetoprotein" levels are abnormal, further investigation is advised. Ultrasound and/or amniocentesis will be recommended to confirm the screening test.

Where Professor Weiner works they charge $35 for an antenatal check-up. The "alpha fetoprotein test", as it is known, is offered to all women. Only a small percentage of women will need scanning as part of that cost. But they still can make a profit using the AFP as a screening procedure.

And in the United States, Professor Weiner said the population there "accept a loss but not a miss" when it comes to an abnormality. He believes both tests are necessary if that's what the population wants.

Dr Soothill said if only one is available, it should be ultrasound. Both are used in Britain.

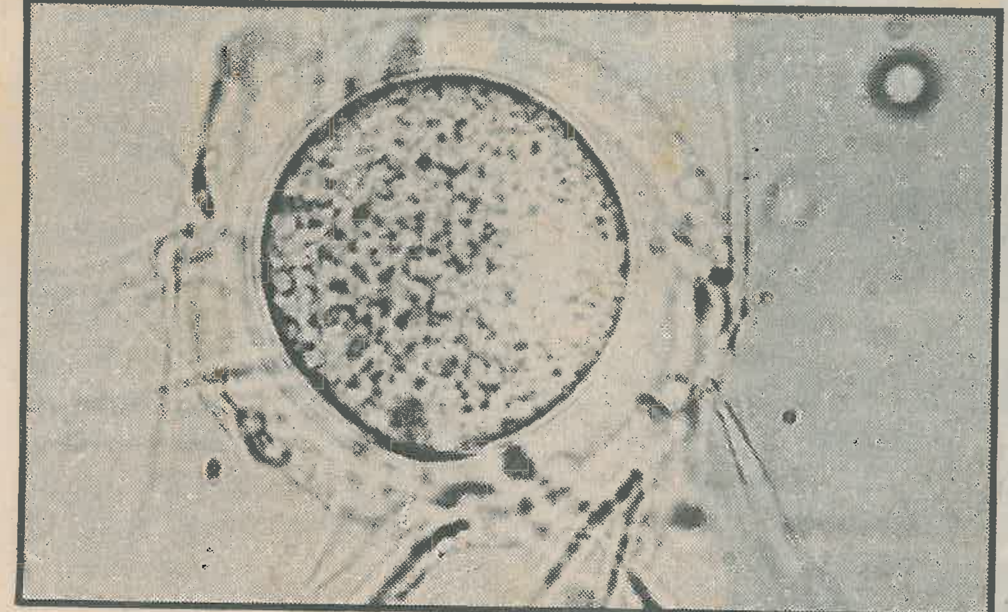
AFP testing has been available since the 1970s but there have been concerns about false positive and false negatives, and the unnecessary testing on women with normal fetuses causing unnecessary concern and anxiety.

Mac Gardiner, a geneticist who is an associate professor in the Paediatric Department of Dunedin Hospital wants to see alpha fetoprotein screening introduced here for women to choose whether or not they would like to have the test done. When it comes to the cost of offering a screening test to all women, it has been shown it is far more economical than supporting severely handicapped offspring — namely Down's syndrome and severe spina bifida. Professor Gardiner is more concerned about the emotional costs.

While it cannot be avoided at the point of conception, he believes the diagnosis should be sufficiently early for a woman to choose a termination if that is her wish, and the earlier the better to reduce the stress and trauma of the ordeal.

Professor Gardiner emphasised the importance of counselling patients and providing them with information about the test and why it is worthwhile.

"They should know what they are opting for or out of," he said.



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In Iowa, only a third of the women in the state choose to have the test done. Professor Weiner attributes this to a poor educational programme. To make such a screening programme work here in New Zealand, he believes that a massive educational effort would be advisable and even with that under way, there would still be a huge amount of resistance.

Richard Fisher, an Auckland obstetrician and gynecologist is sceptical of any screening. He feels New Zealand isn't even at step one before trying to get step two under way. "New Zealand doesn't even have a coherent pre-natal screening and diagnostic programme," he said.

Less than half the women in New Zealand have amniocentesis when they are over 37 years of age, when the risk of Down's syndrome is thought to increase.

"How can we possibly get a low risk programme under way, when we cannot even get a high risk programme established?"

Amniocentesis is available as a free service in Auckland to women over 37. In other centres, such as Wellington, Christchurch and Dunedin it's 35. Dr Fisher said he feels anxious charging 35 or 36-year-old Auckland women for private amniocentesis, but it is often the only way they have access to them.

He said he also spends a lot of time trying to talk to these younger women about the risks.

"With amniocentesis, approximately 1 per cent of women will miscarry because of the test," Dr Fisher said.

"We need a consistent, equitable programme in New Zealand offering screening which is accessible to everybody," he

boards. He is also sceptical of any screening programme which may create anxiety.

And now there is the choice of chorionic villus sampling, (CVS) which, like amniocentesis, detects chromosomal abnormalities. However, it can be performed much earlier, anywhere from nine weeks on.

Rather than taking amniotic fluid via the abdomen, the samples of "chorionic villus", tiny leafy structures on the edge of the placenta need to be removed and checked. It's being done in New Zealand via the abdomen or vagina and cervix. It appears the abdominal access is preferred by women and has advantages to transcervical sampling — it's safer and results are quicker to obtain.

Dr Soothill recommends routine CVS from 10 weeks for women at risk. By that time, he claims, a spontaneous abortion would have occurred if it is going to and a suction termination is still possible at this time.

Without a doubt, if a woman did show low alpha fetoprotein levels or there were concerns with CVS, she would need a scan as soon as possible to confirm the test.

This brings in Doppler ultrasound which is being researched in New Zealand. There has been controversial data produced overseas as to its role in clinical practice, however other specialists are finding it invaluable. It also operates from sound waves and produces wave forms on a screen from the movement of blood cells.

It can be used to assess the blood circulation of the developing baby, and the flow of blood from the mother to her fetus, via the placenta. Many complications can be detected by analysing the patterns printed out by its complex computer which produced the wave forms on to a graph showing changes in frequency as the blood cell moves along the blood vessel.

It is used overseas to identify some of the high risk pregnancies, which may lead to poor growth and stillbirths earlier than currently available techniques.

It also uses a lot more energy than the ultrsound scan but there are clear guidelines for energy output that the machine should produce. And Doppler used for fetal work is used within these guidelines. More energy is used in other areas of patient care. In New Zealand, Doppler is already used in adults to check the blood vessel flow to the brain and legs, which if blocked or narrowed, can cause strokes.

Dr Soothill sometimes uses Doppler at Kings for diagnosing problems in pregnancy. He has also looked for evidence of heating effects on the fetus from all ultrasound scans and found none . . . "but that's all one can say"

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