New devices could hold key to predicting premature births

February 13 2012

Scientists and doctors from the University of Sheffield are developing two novel devices that could lead to the improved prediction of premature births.

Two major trials, together worth nearly a million pounds in funding, are being set up at the University of Sheffield and Sheffield Teaching Hospitals NHS Foundation Trust to evaluate the accuracy of the new technologies.

The innovative devices will be able to assess a woman's cervix to establish the risk of her having a premature birth, by using electrical impulses to take measurements of the resistance of tissue in the cervix.

In a trial funded by the Medical Research Council (MRC), 500 women are to be recruited at Sheffield's Jessop Wing Hospital over the next two years. Of those 300 women will be deemed at high risk of having a premature birth because they have had such a birth at least once before. The remaining 200 will be women without a history of premature birth. The special device will be used to predict the outcome of the birth, before results are analysed to see if the predictions have been accurate.

Another device is being developed in a separate pioneering study funded by the National Institute for Health Research (NIHR) Invention for Innovation programme. If both devices are shown to be accurate, they will enable clinicians to improve the care of women at risk. Doctors could, for example, use a hormone treatment called progesterone therapy

in a more focused way, which could help to prolong the pregnancy. Additionally, women could be transferred to a unit better equipped to provide high dependency neonatal care.

Premature birth accounts for more than 70 per cent of deaths in babies just before or after birth, and is a major cause of childhood illness, disability and mental handicap globally. One in every four babies born before 28 weeks develops a mental handicap.

Dr Dilly Anumba, Clinical Senior Lecturer at the University of Sheffield and Consultant in Obstetrics and Gynaecology at Sheffield Teaching Hospitals NHS Foundation Trust, who is leading the trials, said: "We are very excited to have received this funding – nearly a million pounds worth in the last month.

"We know that using electrical impulses can help to give us accurate information about the condition of the tissue in the cervix, and this in turn can help us to predict premature birth. Our devices have shown promising results in previous work we've done, but we now need to trial them on larger numbers of women. These trials will allow us to put the devices to the test on a large scale.

"If we can prove the devices to be accurate, they could transform our ability to predict and manage premature birth. At present, our predictive methods are unreliable, and so it is more difficult to give mothers and babies the treatment they need to maximize the chances of a successful birth.

"With the new devices, we may be able to start treatments earlier, focus them better, and potentially give babies a much better start in life."

The studies will be complete within three years. If successful, it is anticipated that the devices could be available to the NHS within five

years.

Provided by University of Sheffield