Alleviating complications of babies born smaller: Is a growth factor injection the answer?

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Credit: Anna Langova/public domain

Researchers have found a new potential treatment that may alleviate complications of babies born smaller than they should be, also called fetal growth restriction, which refers to poor growth of the fetus in the mother's womb during pregnancy. The findings were published in the *Journal of Physiology*.

Sheep fetuses received weekly injections of a growth factor (IGF1). There is always a risk that the increased demands of the larger fetus will not be met by the placenta during periods of stress, such as labour. However, the increased fetal growth did not increase the number of stillbirths and deaths in the period leading up to birth and in the first week after birth (also known as perinatal mortality). The treatment may need to be modified according to the sex of the fetus, as the growth response after birth is sex-specific.

A placental hormone in the mother's blood (called NT-proCNP) was found to correlate with the level of oxygen the fetus received, which is a key indicator of fetal wellbeing. Currently, oxygen levels can only be measured by methods that put the fetus at risk. This finding could mean the placental hormone could be used as test of fetal wellbeing, if future clinical trials prove its safety and efficacy in humans.

This study, conducted by researchers at the University of Auckland-based Liggins Institute and the University of Otago, New Zealand, is the first to ever follow fetuses treated for fetal growth restriction during labour up into adulthood. It is important to now test whether the same effects are observed in humans.

Professor Frank Bloomfield, the lead investigator of the study and director of the Liggins Institute, commented on the clinical relevance of the findings:

'Further adult hormonal and growth statuses in these animals will provide critical information on the effect of this treatment through to adulthood, providing further evidence of any long-term effects. The next step will then be studies in human pregnancies at greatest risk.'

More information: A. M. Spiroski et al, Postnatal effects of intrauterine treatment of the growth-restricted ovine fetus with intra-

amniotic insulin-like growth factor-1, *The Journal of Physiology* (2017). DOI: 10.1113/JP274999