Study on adequate identification of the term fetus at risk due to intra uterine growth restriction.

Published: 13-08-2012
Last updated: 26-04-2024

Evaluate the potential of these new parameters to identify small-for-gestational-age fetuses at risk of adverse outcome.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Foetal complications
Study type	Observational non invasive

Summary

ID

NL-OMON37891

Source
ToetsingOnline

Brief title
SAFARI study

Condition

- Foetal complications

Synonym
fetal growth restriction, Intra uterine growth restriction

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Utrecht
Source(s) of monetary or material Support: Stichting vrienden UMC Utrecht

Intervention

Keyword: At risk, Innovative diagnostic tools, Intra uterine growth restriction, Term

Outcome measures

Primary outcome

Composite measure of adverse outcome (mortality AND/OR asphyxia defined as

pH<7.05 AND/OR Apgar at 5 minutes <7 AND/OR admission to NICU AND/OR antepartum

obstetrical intervention for suspected fetal distress)

Secondary outcome

- Neonatal neurobehavioral development.

- Ponderal index

- Catch up growth (after 4-6 months)

- Metabolomics

Study description

Background summary

Perinatal morbidity and mortality are increased in term fetuses with a birth weight below the 10th population percentile. Perinatal mortality is around 1%. Data from the Dutch Perinatal Registry have shown that the risk of perinatal mortality in term fetuses increases from 0.1% to 0.8% and 2% when the birth weight percentile decreases from the 75th centile to the 5th-10th percentile and below the 2.3rd centile, respectively. About 60% of term perinatal mortality concerns children with a birth weight percentile below the 10th percentile. A low birth weight has important consequences for future development, especially for cardiovascular, metabolic and neurological development. (DOHaD; *Barker hypothesis*).

Term small-for-gestational-age (SGA) fetuses present the obstetrician with at least two difficulties. Firstly they are difficult to identify. After identification of the small fetus, the second challenge concerns the distinction between pathologically small fetuses, most likely accompanied by a suboptimal placental function, and healthy small fetuses. Such a distinction is

difficult, since most assessment tools fail during the term period.

The importance of being able to identify fetuses at risk resides in the possibility to target interventions with potential adverse effects if used too liberally. This has been shown by a recent large randomized trial in which an unselected population of term fetuses with an estimated fetal weight below the 10th percentile were randomized between immediate induction of labor or expectant management. The incidence of adverse outcomes did not differ between both groups. In other words, too many constitutionally small fetuses were exposed to an unnecessary intervention with risks of complications obscuring the possible gain of early intervention in fetuses at real risk.
Many parameters have been evaluated to distinguish between constitutionally small and pathologically small fetuses with little result so far. Doppler evaluation of flow patterns in the umbilical artery are used routinely in preterm growth restricted fetuses but are normal in most cases in term small-for-gestational-age fetuses. This due to the fact that a high placental resistance occurs only when more than 1/3rd of placenta function is deficient. Oligohydramnios is not specific enough. Abnormal fetal heart rate patterns can reliably identify fetal distress but are a late sign of impairment. Monitoring of fetal movements is subjective and reduced movements are generally also a late sign of impairment. ,

Recently a number of diagnostics tools have been described in small case series, which have potential in the early recognition of the term SGA fetus at risk for adverse neonatal outcome:

Ultrasound:
-Flow patterns and ratio's in maternal and fetal arteries: a. umbilicalis , a. cerebri media, ductus venosus, a. uterina
Fetal heart rate registration:
- Analysis of the autonomous regulation of the fetal heart rate. Assessed by relatively new promising methods; spectral analysis or phase rectified signal averaging (PRSA) of the fetal heart rate, measured by electromyography.

The challenge is to find combinations amongst these new monitoring modalities that will identify term SGA fetuses at risk, in such a way that targeted intervention studies can be performed.

Study objective

Evaluate the potential of these new parameters to identify small-for-gestational-age fetuses at risk of adverse outcome.

Study design

Prospective longitudinal observational study in which multiple antenatal

parameters are correlated to neonatal outcome.

Study burden and risks

Risks/burden:
During pregnancy all additional measurements will solely be performed during routine investigation; all of the participating women will receive standard care. Fetal heart rate recording by the AN24 recorder is completely non-invasive. Therefore the maternal or fetal risk and time/effort burden for the patient is negligible.
For the neurological assessment of the child at 3 months, a validated assessment will be used; Qualitative assessment of general movements according to Prechtl. This is the only additional examination for these children.
For the further follow up, participants will be contacted after 1 year and after 2 years for information about growth and neurobehavioral assessment, this could be considered as a minimal burden.
The risk for participating mothers is classified as negligible. Although the risk for the participating children is also extremely small, due to the fact this group is very vulnerable, classification is minimal crossing of a neglible risk. Risk classification is based on the document "Kwaliteitsborging van mensgebonden onderzoek' of the NFU, page 36 table 1:Risk classification.

Benefits:
A low birth weight has important consequences for future development, especially for cardiovascular, metabolic and neurological development. (DOHaD; *Barker hypothesis*).Identifying true growth restriction may contribute to adequate timely delivery resulting in prevention of long term neurodevelopmental and cardiovascular consequences. The importance of being able to identify fetuses at risk also resides in the possibility to target interventions with potential adverse effects if used too liberally, for example unnecessary premature termination of pregnancy with immature long maturation as a consequence.
Even though participating patients will not benefit personally, due to its potential large benefit for patients in the future, this study should be considered ethically acceptable.

Contacts

Public
Universitair Medisch Centrum Utrecht

Lundlaan 6
Utrecht 3508 AB
NL

Scientific
Universitair Medisch Centrum Utrecht

Lundlaan 6
Utrecht 3508 AB
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Children (2-11 years)
Elderly (65 years and older)

Inclusion criteria

Gestational age >34 weeks, suspected of growth restriction defined as an estimated fetal weight or fetal abdominal circumference below the 10th population percentile measured by ultrasound twice, with at least 7 days between both measurements.

Exclusion criteria

Known chromosomal and/or structural anomaly
Multiple gestation
Antenatal intra-uterine infection
Signs of an intra-uterine infection during labour, defined as a maternal rectal temperature > 38.5 C° AND fetal tachycardia on CTG with fetal heart rate above 170 beats per minute.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	15-11-2012
Enrollment:	500
Type:	Actual

Medical products/devices used

Registration:	No

Ethics review

Approved WMO Date:	13-08-2012
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO Date:	25-07-2013
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL39520.000.12