NonInvasive Prenatal Diagnosis - DNA TEsting on fetal Cells from the Cervix

Published: 08-06-2023
Last updated: 19-07-2024

Objective: The main objective is to investigate if we can isolate fetal DNA less-invasively obtained by endocervical sampling with sufficient quantity and quality for genetic testing (feasibility). The second objective is to establish that DNA of...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Chromosomal abnormalities, gene alterations and gene variants
Study type	Observational invasive

Summary

ID

NL-OMON54115

Source
ToetsingOnline

Brief title
NIPD-DTECC

Condition

- Chromosomal abnormalities, gene alterations and gene variants

Synonym
Congenital Abnormalities; Genetic disorders

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: Ministerie van OC&W,Gratema stichting

Intervention

Keyword: cervical swab, genetics, Prenatal diagnosis

Outcome measures

Primary outcome

1. Establishing a robust laboratory protocol for processing samples.

Secondary outcome

2. Sequential sampling of up to 100 samples, with as stopping criterion that

less than 10 failures are observed in 100 samples. Failures are cases where

less than 300 fetal cells are obtained admixed with no more than 60 maternal

cells.

3. Quality and quantity of DNA for genetic testing using DTECC samples

Study description

Background summary

Prenatal genetic testing for genetic birth defects is currently performed on fetal samples obtained by chorionic villous sampling (CVS) or amniocentesis, both invasive procedures with a 0.2-0.3% miscarriage risk. This risk may withhold pregnant women from undergoing this procedure or testing. We have developed in vitro a less invasive method to collect fetal cells from a cervical swab. This novel method makes use of the principle that fetal trophoblast-like cells are naturally shed from the placenta into the reproductive tract, and consequently can be collected by endocervical sampling as early as 5 weeks of gestation. Subsequent isolation using trophoblast-specific immuno-staining and cell sorting is expected to yield sufficient and pure fetal DNA for genetic testing. However, this technique has been tested in vitro on cell lines only. The aim of the proposed study is to establish that sufficiently fetal DNA can be obtained with high reliability after endocervical sampling.

Study objective

Objective: The main objective is to investigate if we can isolate fetal DNA

less-invasively obtained by endocervical sampling with sufficient quantity and quality for genetic testing (feasibility). The second objective is to establish that DNA of sufficient quality is obtained in at least 90% of the sampling.

Study design

Two phase study, the first phase carried out with up to 30 samples to optimize the protocol and a second phase with 100 samples to establish that DNA of sufficient quality is obtained in at least 90% of the sampling. A failure rate of up to 10% is less than we envision to achieve, but would already be an important step in reducing more invasive sampling techniques.

Study burden and risks

The burden consists of undergoing endocervical sampling directly before CVS or amniocentesis. CVS is always performed transvaginal so the additional burden of sampling is minimal. The additional risk is harmless self-limited vaginal spotting. No significant increased risk of fetal demise nor any trend in that direction have been observed in previous studies. Fetal loss will be monitored as described in the guidelines from the NVOG (https://www.nvog.nl/wp-content/uploads/2018/02/Nota-Invasieve-Prenatale-Diagnostiek-1.0-01-06-2017.pdf).

Contacts

Public
Universitair Medisch Centrum Groningen

Ant Deusinglaan 1
Groningen 9713 AV
NL
Scientific
Universitair Medisch Centrum Groningen

Ant Deusinglaan 1
Groningen 9713 AV
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Inclusion criteria

1) 18 years old or above.
2) Have an indication for CVS sampling or amniocentesis.
3) Pregnant with a gestational age between 10 and 22 weeks.
4) Signed written informed consent

Exclusion criteria

1) minder dan 24 uur de tijd tussen de momenten van het verkrijgen van de studie informatie en de CVS of vruchtwaterpunctie

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	10-07-2023
Enrollment:	150
Type:	Actual

Ethics review

Approved WMO Date:	08-06-2023
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

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	NL79181.042.22