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Non-Invasive Sampling of Amniotic Fluid

Making an effort to minimize the risk for genetic birth abnormalities is a naturally strong parental need, while governments encourage it mainly for economical reasons. In more than 90% of the cases of detection of chromosomal abnormalities in the fetus, a decision to terminate pregnancy is being taken. Currently most tests for the determination of genetic abnormalities are done in the second trimester of pregnancy and the conclusive ones such as CVS (Chorionic Villus Sampling) and amniocentesis are highly invasive with a 1-2% risk of miscarriage. The non- invasive screening methods, combining blood test and ultrasound, which are widely used, suffer from low specificity, and sensitivity, especially in the first trimester. An early and less invasive testing with high specificity and sensitivity will both reduce the risk of miscarriage and will enable, if needed, to terminate the pregnancy earlier.

The Technology

A novel approach for non-invasive extraction and sampling of amniotic fluid is suggested. Applying an ultrasound to the outer membrane of the amniotic sac in a special manner increases temporarily its permeability and allows needle-less (passive or active) extraction of a small amount of amniotic fluid. The procedure being non-invasive to the amniotic sac could be done as early as the first trimester enabling measurement of the various biomarkers directly from the amniotic fluid.

Applications

- Early diagnosis of genetic abnormalities of the fetus.
- Non- invasive delivery of therapeutics directly to the amniotic fluid

Advantages

- Early detection of genetic abnormalities
- Avoids the risk of miscarriage by currently used invasive diagnostic procedures
- Early termination of pregnancy if needed

Patent Status

Patent Pending

Research Team

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