Exploring SOD1 gene for the detection of fetal down syndrome.

ABSTRACT

Objective: Fetal cells and circulating cellfree fetal DNA increases in the maternal circulation in women carrying trisomy 21 fetus. Methods: We attempted the use of superoxide dismutase (SOD-1) gene, which is located at the Down Syndrome Critical Region, to overcome this situation for the prenatal screening of Down syndrome. The prospective of the gene using real-time quantitative polymerase chain reaction was explored. Results: The level of SOD-1 sequences is significantly elevated in the third trimester normal pregnancies (mean = 11728 copies/µl) when compared to the second trimester (mean = 5705.6 copies/µl), ($p<0.005$) and non pregnant normal women (mean = 3580.2 copies/µl), ($p<0.0001$). Down syndrome pregnancies have the greatest elevation compared to all the three trimesters of normal singleton pregnancies and twin pregnancies, $p<0.05$. Conclusions: These data indicate that a quantitative analysis using a gene associated with a disorder could be used in screening for the prenatal diagnosis of fetal aneuploidies regardless of the sex of the fetus.

Article

Keyword: Fetal down syndrome; Maternal blood; Real-time quantitative pcr; SOD1 gene.