How NIPT test has changed the prenatal screening in The Ixelles Hospitals form 2010 to 2015

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Objective

In 1997, the presence of cell-free fetal DNA (cff-DNA) in maternal circulation was reported. This has allowed the development of non-invasive testing for prenatal diagnosis (NIPT). The aim of this study is to evaluate the decrease in number of invasive procedures (amniocentesis or chorionic villus sampling) after the introduction of NIPT.

Methods

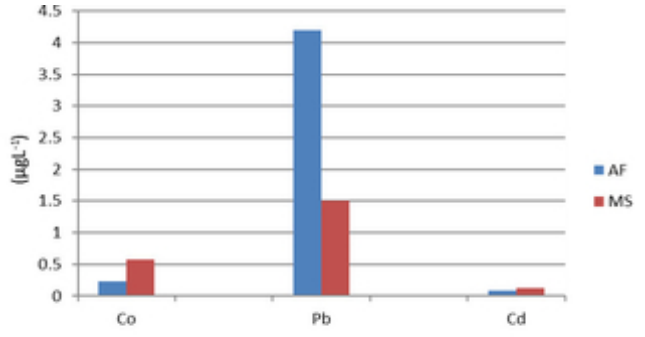
This retrospective study has been performed in the Fetal Medicine department of Ixelles Hospital (Brussels) between 2010 and 2015. We enrolled 1025 patients who underwent invasive diagnostic procedures, for a total of 1030 invasive diagnostic procedures. Two trained gynecologists with several years of experience performed all invasive procedures. The cff-DNA test of choice was PrenaTest®, with a sensitivity and specificity of 98,7% and 100%, respectively for the detection of fetal trisomy 21. PrenaTest® can be performed from 9 weeks of pregnancy.

Results

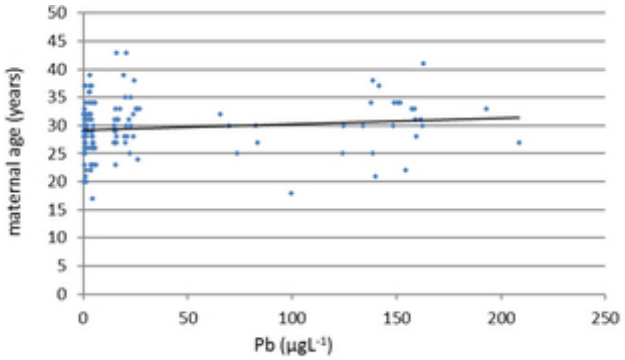
We observed a significant reduction in the number of invasive procedures, 24.1% in 2010 to 8.3% in 2015. The number of amniocenteses decreased from 23,9% in 2010 to 6,5% in 2015. The number of CVS did not seem to get affected by the introduction of NIPT test in 2013. We had just one case of complication after amniocentesis during this period.

Conclusion

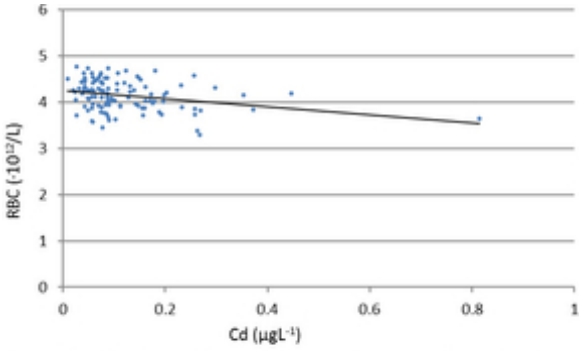
Our data confirm the idea that thanks to cff-DNA we can reduce the number of invasive diagnostic procedures, and especially amniocentesis. The main problems to use cff-DNA as a universal screening test are the cost and the rate failure to give a result.



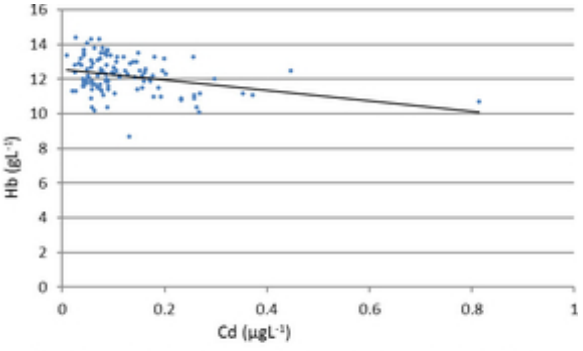
Median concentration of Co, Pb and Cd in amniotic fluid and maternal serum.



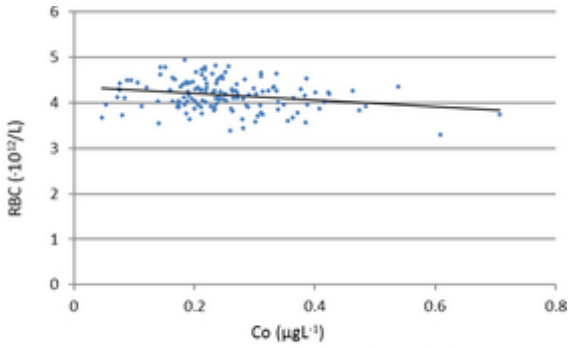
Correlation between Pb concentration in amniotic fluid and maternal age (R=0.18).



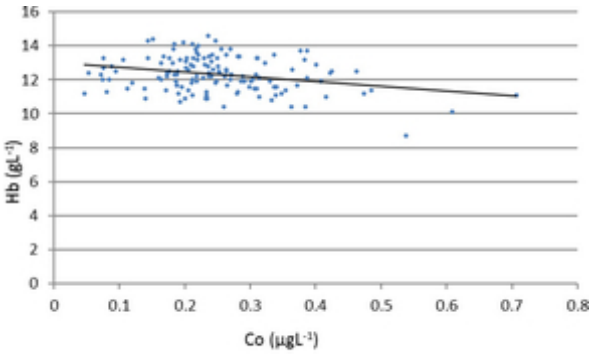
Correlation between Cd concentration in amniotic fluid and RBC in maternal whole blood (R=-0.28).



Correlation between Cd concentration in amniotic fluid and Hb in maternal whole blood (R=-0.24).



Correlation between Co concentration in amniotic fluid and RBC in maternal whole blood (R=-0.20).



Correlation between Co concentration in amniotic fluid and Hb in maternal whole blood (R=-0.19).