This clinical practice guideline was reviewed and reaffirmed by the authors and the SOGC Genetics committee.

No. 343, May 2017 (Reaffirmed October 2022)

Reaffirmed Guideline No. 343: Routine Non-Invasive Prenatal Prediction of Fetal RHD Genotype

(En français : Prédiction du génotype RHD fœtal par test prénatal non invasif de routine)

The English document is the original version. In the event of any discrepancy between the English and French content, the English version prevails.

Authors

Jo-Ann Johnson, M.D., Calgary, AB
Kim MacDonald, M.D., Vancouver, BC
Gwen Clarke, M.D., Edmonton, AB
Amanda Skoll, M.D., Vancouver, BC

SOGC Genetics Committee (2022): Francois Audibert (co-chair), Jo-Ann Brock, Shannon Dwinnell, Krista Fairles, Catriona Hippman, Sylvie Langlois, Christy Pylypjuk, Alannah Smith, Sakina Walji, R. Douglas Wilson, Karen Wou (co-chair), Rhonda Zwingerman

Disclosures: Statements were received from all authors. No relationships or activities that could involve a conflict of interest were declared.

All authors have indicated that they meet the journal's requirements for authorship.

Keywords: noninvasive prenatal testing; antigen D, Rh blood group; cell-free DNA; genotyping; genetic testing

J Obstet Gynaecol Can 2022;44(10):1102

https://doi.org/10.1016/j.jogc.2022.08.004

ABSTRACT

Summary Statements

1. Non-invasive antenatal determination of fetal RHD genotype by cellfree DNA is highly accurate with sensitivities above 99% and very few false-negative results (II-2).
2. While the risks of Rh immune globulin exposure are exceptionally low, it is no longer considered appropriate to treat all D-negative pregnant women with human plasma derivatives when there are no benefits to her or to the fetus in a substantial percentage of cases (II-2).
3. Implementation of non-invasive fetal RHD genotyping with targeted routine antenatal anti-D prophylaxis would enable up to 40% of D-negative women to avoid use of Rh immune globulin (II-2).
4. Fetal RHD genotyping is feasible as early as 10 weeks' gestation and earlier testing is preferable as it allows for targeted prophylaxis for women with sensitizing events prior to 28 weeks' gestation (II-2).
5. Implementation of non-invasive fetal RHD genotyping with selective prophylaxis requires interdisciplinary collaboration (clinical and laboratory) as well as the endorsement of provincial ministries of health (III).

Recommendations

1. The current optimal management of the D-negative pregnant woman is based on the prediction of the fetal D-blood group by cell-free DNA in maternal plasma with targeted antenatal anti-D prophylaxis. This approach should be adopted in Canada (II-2A).
2. While various algorithms of implementation of fetal RHD genotyping have been described, a model positioned in the first trimester appears to be most in alignment with the existing Canadian antenatal anti-D prophylaxis program and should be endorsed (II-2A).
3. While the risk of a false-negative result with RHD genotyping is very small and the benefits of knowing the fetal RHD status in terms of compliance with prophylaxis seem to outweigh the risks, the chance of immunization is not zero. Quality control at a laboratory and clinical level should be of utmost priority in program planning (II-3A).

ORIGINAL GUIDELINE

For further information, consult the original guideline at: https://doi.org/10.1016/j.jogc.2016.12.006