

# Who is our patient: The fetus or the mother?

Carlos Alberto Gonzalez, Silvana Gonzalez, Jeremías González

There exists a need to acknowledge who is truly our patient, whether it is the fetus or the pregnant mother, from an immunohematological point of view, in the context of hemolytic disease of fetus and newborn (HDFN) [1].

In order to achieve this, first of all, it is essential to take into account certain critical aspects regarding this disease. Not only its physiopathology, diagnosis, and treatment but also an effective way to prevent it has been described. More than 50 years after the introduction of its prophylaxis through anti-D immunoglobulin [2], HDFN continues to be a heavy burden in many countries. In the final sense, this signifies a profound inequity between continents and countries.

This is reflected in the fact that even though in the world the total doses of anti-D immunoglobulin required annually to prevent maternal alloimmunization is around 12.9 million, only 3.6 million doses are annually administered. While high income countries reach acceptability in the number of doses administered, there is a huge gap between them and entire regions that do not reach a minimum threshold for acceptability, such as South Asia and Sub-Saharan Africa [3]. Consequently, this is translated later on into a huge gap in the prevalence, incidence, and mortality of HDFN. Indeed, while certain countries of high income have virtually eliminated HDFN through immunoglobulin anti-D, other countries continue to have a high prevalence and incidence, concentrating 80% of the cases in the world [4], due to their lower administration of immunoglobulin.

In other words, current global technology has given us the tools to eradicate this disease. Its eradication should have become a fact, instead of remaining just words in papers.

At the same time, we should also consider pregnancy from a different immunohematological perspective. This brings us to our original question. Who is our patient: The mother or the fetus? That is to say, in the immunohematological perinatal monitoring during pregnancy, should we focus on the pregnant woman or the fetus? (see Figure 1).

Most of the time we focus on the pregnant woman and carry out her blood tests (e.g., indirect antiglobulin test). However, in the past decades, new techniques have arisen, shifting focus to the fetus by striving to predict whether the fetus will be affected or not (e.g., fetal genotype) [5].

As a matter of fact, most current routine immunohematological tests in perinatal monitoring of sensitized pregnant women, with antibodies capable of producing HDFN, are not screening tests, since they do not allow to predict with certainty which fetus will be affected and which won't, as a result of:

- Not knowing fetal genotype
- Antibodies of similar specificity and potency that show a different behavior *in vivo*
- Different behavior of fetal effector cells
- Presence of antibodies and other blocking factors in the pregnant person and/or fetus

Carlos Alberto Gonzalez<sup>1</sup>, Silvana Gonzalez<sup>2</sup>, Jeremías González<sup>3</sup>

**Affiliations:** <sup>1</sup>Physician, Servicio de Hemoterapia, Hospital de Infecciosas Francisco Javier Muñiz, Buenos Aires, Argentina; <sup>2</sup>Physician, Medical School, Pontificia Universidad Católica Argentina, Buenos Aires, Argentina; <sup>3</sup>Student, Colegio Nacional de Buenos Aires, Universidad de Buenos Aires, Argentina.

**Corresponding Author:** Carlos Alberto Gonzalez, Uspallata 2272, Ciudad Autónoma de Buenos Aires, C1282AEN, Argentina; Email: carlosgonzalez@buenosaires.gob.ar

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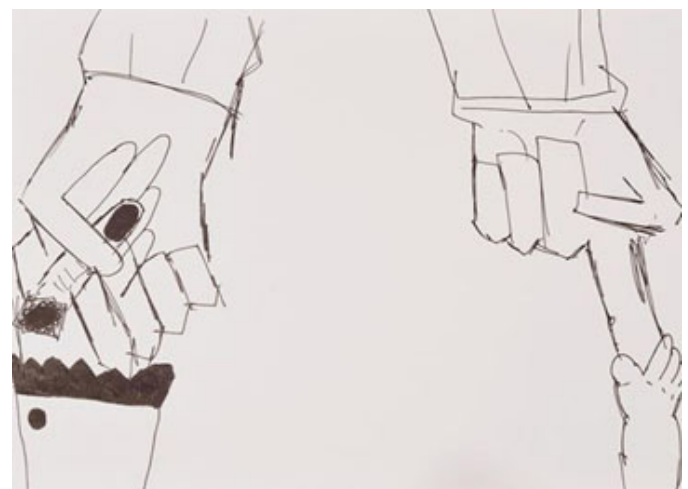


Figure 1: Representation of our dilemma. Who is our patient: the fetus, the pregnant woman, or both?

Bioassays could help in this particular problem. Nonetheless, they are not yet universally used.

In the light of the above, we propose that both, the pregnant woman and the fetus, are our patients, and that's why both of them should be taken into consideration from an immunohematological point of view.

**Keywords:** Fetal anemia, Hemolytic disease of fetus and newborn, Perinatal cytopenia

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## Author Contributions

Carlos Alberto Gonzalez – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Silvana Gonzalez – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Jeremías González – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Written informed consent was obtained from the patient for publication of this article.

## Conflict of Interest

Authors declare no conflict of interest.

## Data Availability

All relevant data are within the paper and its Supporting Information files.

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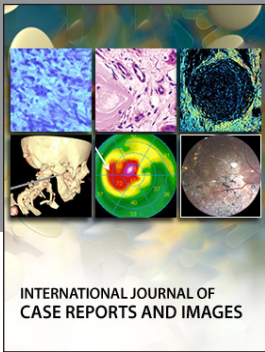
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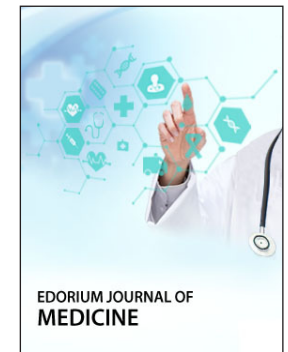
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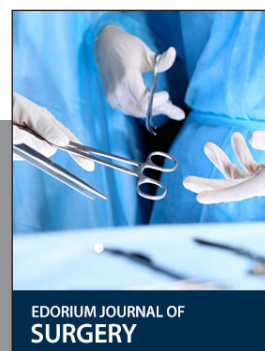
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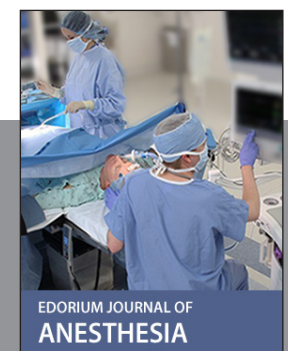
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