



**MEDICINA  
UNIVERSITARIA**

[www.elsevier.es/rmuai](http://www.elsevier.es/rmuai)



## EDITORIAL

# Transfusion medicine zeitgeist and coming of age



Blood transfusion is an invaluable therapeutic resource whose indications – and results – are with frequency surrounded by controversy. There are many aspects of the issue of blood transfusion indications, ranging from those strictly medical, to cost-efficiency considerations, all the way up – or down – to spiritual and religious aspects of this always intriguing subject.

Since it first began to be practiced from animals into humans in Montpellier, France, between June and September 1667 by Jean Denis and later that same year by Richard Lower in London, with their respective reports published almost at the same time, transfusion of blood, what we now see as routine, every day practice, has followed a fascinating journey, evolving into a vital medical field as no artificial blood substitute is either available or foreseen in the near future.

Remarkable developments have hallmarked transfusion medicine trends in the past century; during the 60s, the golden era of hardware innovations in blood banking, including the development of better anticoagulants allowing red blood cells and platelets to extend their shelf life, improved plastic blood bags and centrifuge technology, transfusion accessories like blood warmers, cell processors and special filters, among many others. In the 80s the AIDS epidemic brought up as a collateral effect the discovery and implementation of new molecular techniques for detecting blood pathogens; later that century, at the end of the 90s, blood cell processing became a standard practice, leading to, among other things, hematopoietic stem cell transplant procedures with well-defined standards, and software as well as technical equipment innovations, allowing exquisite cell selection and collection for therapeutic indications in addition to hematopoietic grafting, which put into the reach of many centers – and patients – around the world this last complex procedure, thus democratizing it.

As a fortunate consequence of these briefly chronicled achievements in blood banking, the field of transfusion medicine grew to become a significant factor to guarantee the proper use of such scarce therapeutic resource as human blood is. Improvements in blood utilization, safety and healing power pushed the need for better prepared

physicians working in the field who later generated a wealth of knowledge translated into practical interventions aimed to the individual patient with hematological and non-hematological diseases.

In order to translate the benefits of these achievements to as many patients as possible, it has become evident that better training in prescribing physician abilities covering all aspects of the practice of blood transfusion is mandatory; this is a goal that requires well-designed practical courses addressing specific learning needs of doctors in training, which should prepare them in the best possible way to heighten their blood ordering practices, all of this in a way that does not interfere with training and skills acquisition goals.

With financial resources needed to provide contemporary medical care on the rise in the last decades, cost containment in the hospital is now a must for medical centers and individual physicians alike. One of the areas in which specific interventions can be introduced are those surrounding the transfusion of blood, as savings can be considerable with relatively modest efforts that can be instrumented in both arms, the administrative one, as a consequence of adherence to modern practice of blood banking, incorporating more efficient equipment and current serology techniques, and the medical arm, in which change comes hand in hand with expert supervision coupled with appropriate teaching tailored to the specific demands of each specialty practice, be it surgical or medical in nature.

Two articles in this number of *Medicina Universitaria* address pressing matters in these two equally important aspects of transfusion medicine and blood banking, the first, “Impact on Costs Related to Inadequate Indication of Blood Transfusion” by Cázares-Benito et al.<sup>1</sup> closely documents the financial consequences and economic impact on the budget of a university teaching hospital, finding that almost half of blood products transfused, remarkably packed red blood cells and fresh frozen plasma, were considered to be the result of an inadequate indication after applying appropriate guidelines; this of course impacted significantly in the blood bank’s budget. This paper is important as it clearly exemplifies lack of standardization on blood ordering

<http://dx.doi.org/10.1016/j.rmu.2016.07.002>

1665-5796/© 2017 Universidad Autónoma de Nuevo León. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

practices at the institution, and calls for much improved ordering strategies and in-depth specific supervision of junior doctors by attending physicians.

The second paper in this issue "Assessment of Transfusion Medicine Knowledge of Physicians in Training at a University Hospital" deals with the issue of actual practical transfusion medicine knowledge among physicians in training at the same teaching hospital. The report by Alvarado-Navarro et al.<sup>2</sup> evaluated close to two hundred residents of all areas and found that few hours were devoted to teaching modern transfusion practice in both, the medical school, and graduate programs. Interestingly, packed red blood cell and fresh frozen plasma transfusion in emergency situations were the topic with the lowest scores. The authors concluded that practice-oriented, strongly focused short teaching interventions are needed to meaningfully change blood-ordering behavior. Such intervention is currently ongoing.

Last but not least, one Expert's Opinion article in this issue of *Medicina Universitaria*, "Rediscovering the Coombs Test" comments on the history, evolution, current methodology and interpretation of the anti-human globulin test, the most important technique in blood banking and transfusion medicine after ABO blood group determination and saline cross-matching, completing the accent on transfusion medicine in this number of the Journal.

## References

1. Cázares-Benito MA, Cázares-Tamez R, Pérez-Chávez F, et al. Impact on costs related to inadequate indication of blood transfusion. *Med Univ.* 2016;72:148–52.
2. Alvarado-Navarro DM, Cázares-Tamez R, Pérez-Chávez F, et al. Assessment of physicians in training's knowledge of transfusion medicine at a university hospital. *Med Univ.* 2016;72:139–47.

José Carlos Jaime-Pérez\*

*Hematology Service, "Dr. José Eleuterio González"  
University Hospital of the School of Medicine of the UANL,  
Monterrey, Mexico*

\*Corresponding author at: Servicio de Hematología,  
Hospital Universitario "Dr. José Eleuterio González" de la  
Universidad Autónoma de Nuevo León, Edificio "Dr. Rodrigo  
Barragán", 2° Piso, Avenida Madero y Gonzalitos S/N,  
Colonia Mitras Centro, Monterrey, Nuevo León C.P. 64460,  
Mexico. Tel.: +52 81 1257 2905/06;  
fax: +52 81 1257 2905/06.

E-mail address: [carjaime@hotmail.com](mailto:carjaime@hotmail.com)