

Peer Review File

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Reviewer 1:

Authors have collected a material of insightful value on bacterial contamination of blood components, chiefly platelets as expected, in 18 Latin American country. They next attempted to model contaminations upon situations reported in countries having set in forme robust hemovigilance systems.

Though--as earlier mentioned--there is great potential for this material, the manuscript is almost impossible to follow: scholar writing, lack of hypotheses, etc.

Comment 1:

I would have needed to have an at a glance table on major safety measures relative:

- to platelet component collection,
- manufacturing and processing,
- preservations,
- issuing and outdating on each country,

perhaps compared with similar items picked ups from the literature in France, UK, the Netherlands, Australia, Switzerland, Canada, etc. (countries having set in force robust HV systems).

- Apheresis vs pools vs single units;
- filtration yes or no

- and if yes at which time,
- expiry date etc.
- And the select what is comparable: bacterial detection or not,
- PRT or not,
- 5 d vs 7d etc.

Reply 1:

Changes in the text: We create a new table 1 with data requested

Comment 2: Modeling is an interesting concept but teaches little if not related to safety specific safety means.

Reply 2:

Changes in the text: We have modified our text as advised:

Pages nine and ten:

Before implementing skin disinfection, diversion of the initial volume of collected blood, and detection of BC, the incidence of BC was approximately 1 in 1000 platelet units and reports of sepsis were 1 in 15-100,000 transfusions. (6) The American Red Cross experience showed that the implementation of skin disinfection, diversion of the initial volume of collected blood, and detection of BC reduced the rate of sepsis and deaths associated with BC in platelets by 70%. (69) However, BC persists even automated bacterial culture in large part (residual risk) by false-negative cultures due to the low concentration of bacteria in the unit at the time of sampling. The use of PRT can reduce the risk of BC further. However, its ability to reduce contamination will depend on the type of technology, the initial bacterial load, the type of bacteria, and the time

elapsed from collection of the unit to inactivation.

Therefore, we estimate the frequency of BC (Table 4) and TTBI in PT units (Table 5), and TTBI in red blood cells (Table 6). According to the PAHO report, in 2017, the Latin American countries collected 4,613,316 units of PT and transfused 2,109,337 units. (23) Similarly, these countries reported the transfusion of 6,223,024 units of red blood cells. During that same year, there were 2 cases of TTBI (both in Brazil), indicating a frequency of 1 case per 1,054,669 units of transfused platelets. This result contrasts with the information published by the haemovigilance reports from France, (61) the United States of America,(5) Canada,(13) Spain,(62) the United Kingdom, (60) Austria, (63) Germany, (64) the Netherlands, (65) European Commission, (66) Australia, (67) New Zealand (68) and Uganda (Tables 4-6). (22) Figure 1 shows the median, minimum, and maximum values of CB, TTBI, and deaths associated with platelet and red blood cell components in each country. The reported collection calculated that 4494 cases of BC, should have been reported in all Latin America (1503 cases with the six strategies implemented; or 10,029 events without any strategy implemented). Of them, the majority had to appear in Brazil (median = 1833; 613 with the six strategies implemented; 4091 without any strategy implemented), Mexico (median = 835; 279 with the six strategies implemented; 1863 without any strategy implemented) and Argentina (median = 693; 232 with the six strategies implemented; 1550 without any strategy implemented) (Figure 1A and Table 4).

Kuehnert estimated the risk of death due to BC n in red blood cells transfused in the US between 1998-2000 in 0.13 per million. (70) In the period 1995-2004, FDA estimated the risk of death at 0.21 per million. Between 2005 to 2013, the FDA determined the risk of death at 0.031 per million.

(6) Likewise, France estimated the risk of death from BC of transfused red blood cells at 0.98 per

million between 1996-1998. (71) That same risk of death went to 0.11 between 2000-2008. (59) Lafeuillade et al. suggested a massive introduction of pre-storage leukoreduction as the cause of this fall in deaths. (59) Therefore, prestorage leukoreduction reduced mortality risk due to BC in erythrocytes by approximately 76-89%. Because not all blood banks in Latin America perform leukoreduction, we estimate the number of deaths that Latin American countries should inform to PAHO based on the US and France's risks before and after implementing leukoreduction (Figure 1D and Table 6). We estimated an average underreporting of at least 89%

Comment 3: What is lacking in this study is a strong hypothesis: based upon this survey, what should be the priority to implement additional safety steps. Which ones stand for an almost complete eradication of bacterial sepsis? We all know that PRT stands for such a measure but PRT may not be an option for Latin America due to its costs? Or can it be?

Reply 3: We added some data about Honduras experience with PRT and incorporate the suggested paragraph of priorities

Changes in the text: Based upon this survey, we suggest that the priorities to improve the safety of blood components for BC should be: 1) guarantee a national entity that collects, analyzes, and provides feedback to all stakeholders regarding the annual findings of hemovigilance; 2) Implement external audits to corroborate the reliability of the reports; 3) successful exchange experiences from Brazil and Colombia with the other Latin American countries to strengthen their haemovigilance systems; 4) widespread adoption of PRT. Although some people may consider the implementation of PRT inviable due to costs, the experience of various public and private institutions in Brazil, Colombia, Chile, Argentina, and Honduras, suggests that PRT adoption is

possible.

Comment 4: I would strongly recommend that authors redraft the study by questions. And have a professional editing as well.

Reply 4: We redraft the study by questions. We also contract professional editing process.

Changes in the text: In the whole document we reduce extension of sentences, we rephrase many of them and we changed passive voice for active voice. In summary:

Draft 1 had:

Performance: 91/100

Word length: 5,3

Sentence length: 20,6

Readability score: 27 (according to Flesch reading-ease test)

Draft 2 corrected fixed 307 errors. 71 critics:

Performance: 100/100

Word length: 5,3

Sentence length: 16,9

Readability score: 30 (according to Flesch reading-ease test)

We modified 215 sentences to increase correctness. We also made 92 rephrases to improve clarity.