DONOR SCREENING AS AN ESSENTIAL FACTOR IN THE EFFICIENCY OF DOUBLE PLATELET COLLECTION BY APHERESIS

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Background/case studies: The need for platelets collected by apheresis in Brazil has been gradually increasing. Blood banks that seek quality and transfusion safety choose to use it whenever available. However, the challenge of attracting donors and the operational cost of this method are still determining factors for its exclusivity in the transfusion of platelet concentrates, especially in a country with a middle per capita income, according to the World Bank. Double platelet collection protocols allow this exclusivity in most of these transfusions. This case study establishes the criteria related to donor screening so that double platelet collection minimizes this challenge. **Study design/methods:** In March 2024, 36 voluntary and frequent donors with platelet counts > 200,000 cells/μl and body surface > 1.7 m^2 were previously selected and invited to participate in the equipment validation process. All participants signed the Consent Form acknowledging the risks and authorizing the disclosure of data. Double platelet collections were scheduled in the validation process of the AmiCORE 2.1 equipment with the addition of Intersol (PAS). The programming established a yield between 6 × 10e11 and 6.5 × 10e11 platelets/unit, with at least 50 mL of storage solution (Intersol 65% plus Plasma 35%) for every 0.5 × 10e10 platelets/unit. The maximum collection time was 1120 minutes. The following concentrate parameters were evaluated: platelet count, leukocyte count, pH and microbiological contamination. The equipment was evaluated for efficiency, A/T index and collection time. The presence of adverse events during the procedure was assessed. **Results/findings:** : The average efficiency (yield obtained/number of platelets processed) was 68% with a 95% CI(66.3-70.4).The average A/T index, which relates the programmed yield to the yield obtained, was 1.1 with a 95%CI(1-1.04).The mean pH of the platelet concentrates on the 5th day of storage was 6.9 with a 95% CI(6.9-7.1).The collection time did not exceed 110 minutes in 100% of donations.Of the 36 collections completed, 100% reached the minimum platelet yield of 6 × 10e11/unit and 100% of the platelet concentrates had a leukocyte count of less than 5 × 10e6/μL.The average body surface area of the donors was 2.03 m^2 (1.7-2.34)There was one case of intense perioral paresthesia which was treated by adjusting the reduction in citrate perfusion, and no drug intervention was required. **Conclusions:** Based on prior selection of donor with count > 200,000 platelets/μL and body surface area > 1.7 m^2, we obtained 100% double platelet concentrates enabling the transfusion of platelet concentrates by apheresis for patients in public and private services, with quality and minimized cost. Importance of research Promoting equality and equity in assistance with apheresis platelet transfusion for both patients in the public Unified Health System and for patients in private services is feasible, even in a country with a middle per capita income, according to the World Bank.Hemotherapy services that are guided by transfusion quality must guarantee access to this methodology, without distinction.

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THE DONOR EXPERIENCE IN THE VALIDATION OF NEW APHERESIS EQUIPMENT IN BRAZIL

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Background/case studies: Transfusion of platelet concentrates by apheresis is the first-line treatment for thrombocytopenic cancer patients undergoing chemotherapy. Maintaining a safe stock of this blood component is a challenge for blood banks, as collection time, possible adverse reactions during the procedure and the confidence transmitted by the equipment operator are factors that can discourage donation. Offering the donor an excellent collection experience implies a donation with adequate time and without incidents. A positive experience not only builds donor loyalty but also contributes to better use of the collection. This case study evaluated the donor experience as part of the validation process for a new apheresis machine in Brazil. **Study design/methods:** In March 2024, 40 donors with platelet counts greater than 200,000 cells/ul were selected for validation of the AmiCORE 2.1 equipment with the addition of Intersol (PAS). After collection, a questionnaire assessed the donor's experience, the intensity of perioral tingling and time in the equipment. The ideal responses were above "7"for the positive experience, below "4"for tingling and "adequate"or "short"for time on the equipment. The effectiveness of the collected platelet concentrate was evaluated by the A/T index, with the ideal value being at least 1. **Results/findings:** As for how pleasant it was to donate to this equipment, only 1 donor (2.5%) classified it as not very pleasant, the other 39 (98.5%) found it very pleasant, even when compared to other equipment. The average time spent in the equipment was 85 minutes and the 95% CI (80.5-89.6). The only donor who rejected the equipment was outside this confidence interval. The intensity of perioral tingling was characterized as low (levels 1, 2 and 3) in 39 donors (98.5%), the only case in which the intensity was severe and caused discomfort to the donor was the one in which the collection time was prolonged according to your perception. Regarding the success of collecting platelet concentrates by apheresis, the average A/T index was 1.1 and the CI was 95% (1-1.04). The equipment was approved by 39 (98.5%) donors and they stated that they would donate again. **Conclusions:** Donors' perception was greater than 95%, except for the time spent in the equipment. One donor had severe paresthesia, which was treated by reducing the citrate perfusion rate. Although the length of stay was only 80% of what was expected, 95% of donors

approved the equipment, reinforcing the importance of a welcoming environment. The equipment was recommended for incorporation into the service. Importance of research New blood collection equipment must be validated before use. Validation considers technical, operational and financial aspects. However, the donor experience is also crucial, influencing the quality of the blood component and decisions about acquiring new technologies. This study highlights the importance of donor experience in equipment validation.

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VALIDATION OF DOUBLE PLATELET COLLECTION BY APHERESIS WITH ADDITIVE PLATELET SOLUTION IN CENTRAL-WESTERN BRAZIL

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Background/case studies: Platelet additive solution (PAS) is added to platelet concentrate in transfusion services for patient management and inventory optimization. The reduction in plasma volume and the low isoagglutinin titer reduce immediate transfusion reactions. In the Center-West of Brazil, for the first time this methodology will be applied to all patients in the public and private network. The study validated the collection of platelet concentrates by apheresis with PAS, using equipment whose cell separation is by elutriation, returning residual leukocytes to the donor, ensuring safety for frequent donors. **Study design/methods:** The research involved 37 platelet donations from occasional voluntary donors, with platelet counts ≥ 200,000 cells/uL and body surface ≥ 1.7 m^2. The AMICORE 2.1 equipment was analyzed for its performance for double collection with the addition of Intersol (PAS). All donors signed a Consent Form recording the risks and authorizing the disclosure of data. The collection protocol adjusted the double yield of platelets considering the maximum time spent in the equipment of 120 minutes. The citrate infusion rate was adjusted according to donor sensitivity. An immediate pre- and post-donation sample was collected from the donor to count platelets and leukocytes in a differential counter. Platelets counts were performed in the Neubauer chamber and leukocyte counts in the Nageotte chamber. In all platelet concentrates, blood culture was performed for aerobic, anaerobic and fungal microorganisms and the frequency of immediate transfusion reactions was verified. The perception of the equipment operator was verified through 2 questions with answers on a scale of 1 to 10. In relation to the donor, we evaluated the reduction in platelet and leukocyte counts after donation and incidents during the procedure. The concentrated platelets were stored in two bags, designed under continuous temperature of 20 to 24°C and the samples were separated from the bag, without opening the system, for quality control immediately before transfusion to be evaluated up to the 5th day of storage. **Results/findings:** Of the 37 donations selected, 1 (2.7%) was excluded because the donor had to withdraw unexpectedly due to personal problems. The analyzed data (n = 36) are shown in Table 1: Results of performance qualification in collecting plates from the AMICORE 2.1 equipment - kit 6R8884 with the addition of Intersol* (PAS). **Conclusions:** The equipment was qualified for double platelet collection by apheresis. The low reduction of leukocytes after donation (Average: 0.15x10e3/μl) due to the methodology for returning residual leukocytes; the programmed yield obtained in 100% of double platelets, the absence of immediate transfusion reactions and the perception of ergonomics by operators with a score of 10. Importance of research Offering platelet concentrate with Intersol (PAS) to patients in the public and private network, with equity, quality and prioritization of patient-centered care in a country classified as having a middle per capita income according to the World Bank, increases hemotherapy in the center-west of Brazil to a level of excellence compared to quality services in Europe and the United States.

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PERFIL DOS PACIENTES SUBMETIDOS À PLASMAFÉRESE TERAPÊUTICA ATENDIDOS DE ACORDO COM A CLASSIFICAÇÃO DA AMERICAN SOCIETY FOR APHERESIS

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Introdução: A plasmaférese terapêutica é um procedimento que remove componentes patológicos do plasma, sendo indicada para uma variedade de doenças. A American Society for Apheresis (ASFA) classifica essas indicações em quatro categorias baseadas na eficácia e no suporte clínico disponível para cada condição. Na categoria I a plasmaférese é aceita como tratamento de primeira linha, na II é aceita como tratamento de segunda linha, na III não há evidências de benefício e na IV é ineficaz ou prejudicial. **Objetivo:** Analisar o perfil dos procedimentos de plasmaférese terapêutica realizados por um Hemocentro e comparar com a classificação da ASFA. **Método:** Estudo retrospectivo, descritivo com abordagem quantitativa. Realizou-se um levantamento dos dados obtidos a partir dos registros dos procedimentos de janeiro de 2022 a dezembro de 2023. As variáveis observadas foram sexo, número de procedimentos, líquido de reposição e diagnóstico. Os dados foram classificados de acordo com as categorias da ASFA para verificar a conformidade das indicações. **Resultados:** No período analisado foram realizados 768 procedimentos em 143 pacientes, sendo 50,4% do sexo masculino e 49,6% feminino. Observamos que 96% dos procedimentos foram realizados no âmbito hospitalar e 4% ambulatorial. O líquido de reposição mais utilizado foi solução salina com albumina, em 81% das sessões e o restante das sessões com plasma fresco. Os procedimentos foram separados em quatro grupos: doenças neurológicas, renais, hematológicas e outras, com a seguinte frequência: 53,8%, 21,6%, 18,2% e 6,4% respectivamente. Dentre as doenças neurológicas, a maioria dos