ABO/RH, sendo observada para o grupo RHD positivo a frequência de 22.269 (89,72%) distribuída como 48,09% O+; 31,91 % A+; 7,32% B+; e 2,4% AB+. No que se refere ao grupo RHD negativo, constatou-se a frequência de 2.552, (10,28%), sendo 5,73% O-; 3,38% A-; 0,86% B-; e 0,31% AB-. **Conclusão:** Foi constatado que o grupo sanguíneo O positivo é o mais frequente, estando em acordo com a estatística de trabalhos realizados na região. Conhecer a prevalência dos dois sistemas de grupos sanguíneos mais importantes (ABO/RH) é fundamental para a Medicina Transfusional considerando que a incompatibilidade ABO leva ao óbito. O baixo percentual de doadores RHD negativo repercute em preocupação dos serviços de Hemoterapia considerando que, em casos de pacientes com iminente risco de vida, pode-se utilizar o recurso de infundir este tipo sanguíneo mesmo sem a realização ou término dos testes pré-transfusionais, conforme preconizados na literatura e legislações vigentes.

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ANÁLISE DA PREVALÊNCIA DO PERFIL FENOTÍPICO DO SISTEMA RH E KELL DE PACIENTES ATENDIDOS NO HOSPITAL MUNICIPAL VILA SANTA CATARINA (HMVSC)

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Introdução: O sistema Rh é o maior e mais complexo sistema de grupo sanguíneo, devido a capacidade imunogênica de seus antígenos. Atualmente são mais de 49 antígenos presentes nesse sistema, sendo os cinco principais antígenos: D; C; c; E; e. Além disso, apresenta grande interesse clínico por seus anticorpos estarem envolvidos em destruição eritrocitária imunomediada. O sistema do grupo sanguíneo Kell (K1), pode ser detectado a partir da 10ª semana de gestação e em termo de imunogenicidade só perde sua importância clínica transfusional para os grupos ABO e Rh. Possui importância transfusional, pois seus anticorpos podem causar uma reação hemolítica mediana a severa. Portanto, entende-se que ter o conhecimento do perfil dos fenótipos dos sistemas Rh e Kell (K1), proporciona aos pacientes uma maior segurança e minimiza as possíveis reações transfusionais que por muitas vezes são graves. **Objetivos:** Mapear o perfil fenotípico do sistema Rh/Kell(K1) dos pacientes atendidos no Hospital Municipal Vila Santa Catarina (HMVSC) entre o período de Janeiro de 2017 à Junho de 2022. **Material e métodos:** Estudo retrospectivo, através da análise do banco de dados dos pacientes com recomendação do teste de fenotipagem Rh e Kell(K1) atendidos Hospital Municipal Vila Santa Catarina (HMVSC) no município de São Paulo no período de janeiro de 2017 a junho de 2022. As informações coletadas referentes ao fenótipo Rh e Kell(K1) foram quantificadas, a fim de promover uma análise da frequência dos antígenos D; C; c; E; e; Cw; K na população estudada, expressando os resultados em número total e porcentagem. **Resultados:** Durante o período, foram analisados os dados dos resultados do teste de fenotipagem para o sistema Rh e Kell(K1) de 492 pacientes. Os dados apresentados referem-se as fenotipagens realizadas para os antígenos D, C, c, E, e,Cw, K. Das 492 amostras fenotipadas para o sistema Rh, 81,7% (402) foram Rh-positivo e 18,3% (90) Rh-negativo, sendo as frequências dos antígenos encontradas de: 31,1% (153) R1r; 17,3% (85) rr; 14,6% (72) R1R1; 11,4% (56) R0r; 11,4% (56) R2r; 9,3% (46) R1R2; 2,4% (12) R2R2; 0,8% (4) R1Rz; 0,8% (4) r'r ; 0,2% (1) R2Rz; 0,2% (1) R1wRz; 0,2% (1) R1wR2; 0,2% (1) r"r. Para o sistema Kell, 96,5% (475) foram K1 negativo e 3,5% (17) K1 positivo. **Discussão:** A frequência fenotípica encontrada em nossos pacientes está em concordância com a média descrita na literatura nos sistemas dos grupos sanguíneos estudados. Encontramos somente uma frequência superior na fenotipagem R0r (11,4%), sendo que a média encontrada na literatura é de 2,1%. A disposição dos antígenos na população pode variar dentre os grupos étnicos de um país. A população brasileira é altamente miscigenada levando a alterações significativas nas frequências desses antígenos. Realizar o mapeamento dos fenótipos, proporcionam uma maior adequabilidade na seleção da transfusão. **Conclusão:** O conhecimento do perfil antigênico do sistema Rh e Kell dos pacientes, tem sido essencial para melhor gestão do estoque de hemocomponentes. Disponibilizar sangue fenótipo compatível para o receptor, reduzir o riscode aloimunização, reações transfusionais hemolíticas e doença hemolítica perinatal (DHPN) mediadas por estes antígenos. A análise dos dados nos permite reavaliar e melhorar a estratégia para a manutenção de estoque, de maneira a atender às necessidades dos pacientes.

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RISK OF ANTI-D PRODUCTION IN SICKLE CELL DISEASE PATIENTS (SCD) WITH CONVENTIONAL D AND PARTIAL D TRANSFUSED WITH D+ RED BLOOD CELLS

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Background: Identification of partial D can be of clinical importance because carriers of partial D antigen may develop anti-D when transfused with D-positive red blood cell (RBC) units. Anti-D can also result from altered Rh epitopes on donor RBCs in transfused patients carrying conventional D antigens. **Aims:** The aim of this study was to evaluate the risk of anti-D production in SCD patients with partial D and with conventional D transfused with D+ RBCs. We also accessed the clinical significance and the persistence of the alloantibody produced. **Methods:** A retrospective study was performed in 79 D+ patients genotyped for *RHD* who received at least three D+ RBC units. All patients had complete serological and molecular analyses. Number of D+ RBC transfusions, anti-D identification and anti-D persistence were also recorded. A lookback on the donors and transfusions for those patients including laboratory and clinical findings was performed. Donors whose RBCs were transfused for these patients suspected of having variants were recruited for

further analysis. Laboratory and clinical findings were also used to evaluate the clinical significance of the alloantibodies produced. **Results:** : Partial D phenotypes were found in 25/79 (31.6%) of these patients and included: DAR, DAU0, DAU3, DIVa, DIIIa, DVa, Weak partial D 4.0. Eight (32%) patients produced anti-D: 1 DAR, 1 DAU3, 1 DIVa, 1 DIIIa, 1 DVa, 3 DAU0. Laboratory and clinical evidence of a delayed hemolytic transfusion or decreased survival of transfused RBCs were associated with five anti-D produced in patients with partial D (DAR, DAU3, DIVa, DIIIa, DVa). Anti-D produced by the patients with partial D DAU0 were not clinically significant and patients with weak partial D 4.0 did not develop anti-D even with more exposures of D+ RBC units than those with the other partial D types. Unexpected anti-D was also found in 5/54 (9.3%) patients with conventional D type as a result of D+ RBC transfusions from donors with altered Rh epitopes. Anti-D was more persistent in patients with partial D DAR, DAU3, DIVa, DIIIa, DVa compared to those with DAU0 and conventional D. **Conclusions:** Patients with partial D are more likely to develop clinically significant and more persistent anti-D than patients with conventional D and therefore may benefit from prophylactic D- RBC units or *RHD* genotype-matched transfusions. Our results also suggest that patients with partial D DAU0 do not develop clinically significant anti-D and patients with weak partial D 4.0 are not at risk of developing anti-D.

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EVALUATION OF THE COST AND EFFECT OF PROPHYLACTIC GENOTYPIC MATCHING ON ALLOIMMUNIZATION AND AUTOIMMUNIZATION IN PATIENTS WITH SICKLE CELL DISEASE (SCD)

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Background: Blood transfusion is one of the mainstays of treatment for patients with SCD but despite of the beneficial effects, transfusion therapy can lead to red blood cell (RBC) alloimmunization with serious complications for the patient including life-threatening delayed hemolytic transfusion reactions and the hyperhemolysis syndrome. In addition, the presence of alloantibodies, which is often associated with the concomitant presence of autoantibodies, can lead to difficulty in finding compatible units, which can cause transfusion delays. To reduce alloimmunization some strategies have been implemented to provide antigen matched RBC transfusions to patients with SCD who need chronic transfusion support. In this context, phenotypic and genotypic matching protocols have been used. Based on this, the aim of this study was to evaluate the cost and the effect of prophylactic RBC transfusion genotypic matching on alloimmunization and autoimmunization in patients with SCD. **Methods:** Our study included 79 (33 male and 46 female) patients with SCD, homozygous for HbS, on chronic RBC transfusion therapy receiving prophylactic genotypic matching RBC transfusions in the last two years. In this period, patients received RBC units genotypic matched for Rh, K, Fya/Fy/b, Jka/Jkb, S/s, Doa/Dob and Dia antigens. Molecular matching was performed according to previous molecular typing results performed by the HEA BeadChip (Immucor) in patients and donors. Adsorption onto autologous RBC was also performed to aid the differentiation of autoantibodies from alloantibodies. The cost and availability of compatible units by performing genotypic matching were compared to serologic matching. **Results:** The patients received a range of 5-215 units. And the median age in this group was 39 years old. Of the 79 patients, 17 (21.5%) were alloimmunized before they started receiving genotypic matched RBC transfusions. During this study-period only 2 patients (2.5%) with Rh variants developed alloantibodies (1 anti-C, 1 anti-e) and no patient produced autoantibody. Although the availability of compatible units has decreased when compared to serological matching, it was possible to find compatible units for most patients. A cost reduction of 30% was observed in the genotypic matching compared to the serological matching for the selected matched antigens. **Discussion and conclusion:** RBC transfusions with extended genotypic matching had significant effects on autoimmunization and alloimmunization rates in chronically transfused patients with SCD over two years. Alloimmunization rates have shown to decrease from a range of 21.5 to 2.5% in these patients. SCD patients may benefit from receiving prophylactic genotypic matching RBC transfusions as demonstrated by the reduction on the rates of alloimmunization, autoimmunization and cost.

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ALLOIMMUNIZATION PREVALENCE IN PATIENTS WITH SICKLE CELL DISEASE (SCD): ASSESSMENT OF THREE TRANSFUSION PROTOCOLS

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Background: RBC alloimmunization is a major complication associated with RBC transfusion in patients with SCD with serious complications for the patient including life-threatening delayed hemolytic transfusion reactions and an increase in the risks inherent to transfusion such as TRALI, infectious diseases and the hyperhemolysis syndrome. In addition, the presence of alloantibodies, which is often associated with the concomitant presence of autoantibodies, can lead to difficulty in finding compatible units, which can cause transfusion delays. The prevalence of alloimmunization vary according to the transfusion protocols used and may be reduced by matching for RBC antigens. Based on this, the aim of this study was to assess the prevalence of RBC alloimmunization in patients receiving transfusions with ABO and D matching, with phenotype matching for C, E and K antigens and with extended minor RBC antigen matching. **Methods:** A total of 368 patients with SCD, homozygous for HbS were enrolled. In this period, 81 patients received RBC units matched for ABO and RhD, 188