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RESEARCH ARTICLE

BLOOD TRANSFUSION IN THE EMERGENCY ROOM: EXPERIENCE OF IBN TOFAIL HOSPITAL IN MARRAKECH

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Abstract

Blood transfusion is frequently performed in intensive care. We carried out a prospective study with the objective of evaluating transfusion practices in the emergency room, transfusion thresholds, mortality, prognostic factors and transfusion deviations of labile blood products (LBP) compared to the recommendations of learned societies. This prospective survey was conducted in the vital emergency department of the Ibn Tofail hospital in Marrakech over a period of 6 months, and made it possible to collect data from 50 patients transfused in the emergency room. The mean age was 38 ± 17 years. Patients with no particular pathological history accounted for 10% of cases. The mean SOFA score was 6.34 and the mean APACHE II score was 19.5. Indications for blood transfusion were dominated by hemodynamic instability (71.9%), acute hemorrhage (23.1%) and clinical intolerance of anemia (3.8%). Packed red blood cells (GC) were the most transfused blood product (76.9% of the total amount of transfused LBPs) followed by fresh frozen plasma (FFP) (8.1%) and platelet packs (CP) (1.3%). The average consumption of CG was 2.3 ± 0.7 units per patient. His transfusion threshold responded to a restrictive strategy. The prescriptions complied with the recommendations of the Afsaps. The average consumption of PFC was 5.27 ± 1.22 units per patient. Five transfusion episodes were deemed inappropriate. CPs were only transfused in 9 study patients. The average consumption was 4.4 ± 1.3 CP per patient. A single transfusion discrepancy was observed in a single patient. The mean hospital stay was 4 ± 2.5 days. The mean hemoglobin transfusion threshold was 8.3 ± 1.6 g/dl versus 10.3 ± 1.6 g/dl post-transfusion. The mortality rate in the study was 36.9%. Transfusion was not a risk factor for mortality. Six patients developed post-transfusion accidents. Hyperthermia, the initial severity of the disease (high APACHE II and SOFA scores), coagulopathy and renal insufficiency were considered to be poor prognostic factors.

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Introduction:-

Blood transfusion is a therapeutic act that is frequently used in the intensive care unit; approximately one third of patients hospitalized there receive a transfusion during their stay [1] hence the importance of evaluating the

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consumption of labile blood products to improve the quality of their prescription, transfusion thresholds, mortality and prognostic factors.

Patients And Methods:-

This is a retrospective study conducted within the Vital Emergencies Reception Service of the Ibn Tofail Hospital in Marrakech. The study included 40 patients transfused in our service during the 6-month period in 2019.

Results:-

The average age was 38 ± 18 years with extremes of 17 to 76 years. An associated defect was found in 4% of cases. The average SOFA score was 6.34 and the average APACHE II score was 19.5. The reasons for hospitalization were dominated by surgical pathologies (60%). The main indications for blood transfusion were dominated by hemodynamic instability (71.9%), acute hemorrhage (23.1%) and clinical intolerance of anemia (3.8%). The blood group most frequently found was group O+ (49.4%) followed by group A+ (30.6%). Packed red blood cells (GC) were the most transfused blood product (76.9% of the total amount of transfused LBPs) followed by fresh frozen plasma (FFP) (8.1%) and platelet packs (CP) (1.3%).

The average CG consumption was 2.3 ± 0.7 units per patient. CG transfusion was done in all cases for a hemoglobin level of 8.3 ± 1.6 g/dl. The average consumption of PFC was 5.27 ± 1.2 units per patient. CP was only transfused in 9 study patients. Its average consumption was 4.4 ± 1.3 units per patient. The majority of patients (70.6%) required only one transfusion episode during their hospitalization, while 23.1% required 2 transfusion episodes and only one patient was transfused 4 times. The time of transfusion was frequent in the interval [8:00 p.m.-12:00 a.m.] (41.9%) followed by [2:00 p.m.-8:00 p.m.] (36.3%). The ultimate control at the sickbed was well done for 85.6% of the cases. In our study, 40% of our patients showed signs of poor clinical tolerance of anemia before the transfusion, such as pallor (39.4%), polypnea (23.1%), dyspnea (2%), tachycardia (15.6%), vigilance disorder (2.5%), neurological deficit (0.6%) and arterial hypotension (19.4%). The majority of the patients (96.3%) did not present transfusion reactions whereas 3.8% had side effects linked to the transfusion such as shivering-hyperthermia in 4 patients, hemolysis in one patient and one another had hemodynamic instability. The mean hospital stay was 4 ± 2.5 days. The mortality rate in the study was 36.9%. In univariate analysis, male gender emerged as a good prognostic factor. And clinically, hyperthermia and the initial severity of the patient (high APACHE II and SOFA scores) were considered to be factors of poor prognosis, whereas the transfusion of GCs emerged as a factor of good prognosis. In terms of biological mortality factors: elongated TCK, low creatinine clearance, high bilirubinemia and low TP were considered to be poor prognostic factors. In multivariate analysis, hyperthermia, coagulopathy and renal failure emerged as independent factors of poor prognosis in patients transfused in intensive care, high bilirubin and low PT were considered poor prognostic factors. In multivariate analysis, hyperthermia, coagulopathy and renal failure emerged as independent factors of poor prognosis in patients transfused in intensive care, high bilirubin and low PT were considered poor prognostic factors. In multivariate analysis, hyperthermia, coagulopathy and renal failure emerged as independent factors of poor prognosis in patients transfused in intensive care.

Discussion:-

The main data on the subject date back to the early 2000s, with two multicenter observational studies conducted in Europe [1] and North America [2], which showed that patients are anemic on admission to intensive care (29% hemoglobin [Hb] <10 g/dl [1]), that this anemia worsens during the stay and that there is an association between the Hb level and the length of stay or even mortality (for an Hb < 9 g/dl) [2.11]. In addition, blood transfusion is frequent, involving 37–44% of patients in these studies [2-1]. The proportion of transfused patients even exceeds 70% when the stay extends beyond one to two weeks. Since the work of Hébert et al. [3], transfusion thresholds have been revised downwards [4]. We therefore understand that nowadays, anemia, which was already frequent, be even more so and be more severe. Thus, Walsh et al on a more recent cohort of 1028 patients observed that 87% of men and 79.6% of women were anemic on leaving intensive care [5]. Finally, the anemia persists for a long time, with 50% of patients still anemic six months after leaving intensive care [6]. Even if the blood transfusion seems to be the treatment of anemia, its interest is much debated. Current recommendations are rather restrictive, the transfusion threshold for an intensive care patient is 7 g/dl, and possibly around 8-9 g/dl in the presence of several pathologies [4]. These recommendations are based on the association found between blood transfusion and morbidity and mortality [2-7-1] and especially on a large randomized controlled study which compared a restrictive strategy (transfusion threshold at 7 g/dl) with a liberal strategy (threshold at 9 g/dl) and showed a non-inferiority of the first (and even a superiority in the youngest and least severe patients) [3]. This has been confirmed in several

meta-analyses which showed a reduction in blood transfusion [8] and remains a strong recommendation for “steady state” anemic intensive care patients [9]. These data are based on studies using a wide variety of blood products, leukocyte-reduced or not, more or less old. However, the mechanisms responsible for the morbidity and mortality of transfusion are still the subject of debate. More recent data find no association between transfusion and morbidity and mortality, see tend to suggest a benefit in some patients [10-1].

This is why the hemoglobin value should not be the only element of the transfusion decision, this threshold value must be discussed according to the clinical context and tolerance. The mortality rate in the study was 36.9%. Transfusion was not a risk factor for mortality. Hyperthermia, the initial severity of the disease (high APACHE II and SOFA scores), coagulopathy and renal insufficiency were considered to be poor prognostic factors. 9%. Transfusion was not a risk factor for mortality. Hyperthermia, the initial severity of the disease (high APACHE II and SOFA scores), coagulopathy and renal insufficiency were considered to be poor prognostic factors. 9%. Transfusion was not a risk factor for mortality. Hyperthermia, the initial severity of the disease (high APACHE II and SOFA scores), coagulopathy and renal insufficiency were considered to be poor prognostic factors.

Conclusion:-

The use of blood transfusion in the intensive care unit is a more common practice than one might think. The benefits of packed red blood cells can be seen in the significant change in hemoglobin and hematocrit levels with a trend towards a reduction in the mortality of patients in intensive care. Fresh frozen plasma is consumed less and its indications should be reconsidered. Platelet concentrates remain beneficial in the face of thrombocytopenia associated with haemorrhage. A broader evaluation encompassing various specialties is necessary in order to optimize the prescription of blood derivatives.

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