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Original Research Article

Thrombocytopenia in Intensive Care Unit: About 50 Cases

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ABSTRACT

Introduction: The occurrence of thrombocytopenia is a common complication, which can be found in many pathological situations, in critically ill patients. The objective of this study is to determine the incidence of thrombocytopenia in intensive care unit (ICU) and its effect on patient outcome.
Methods: Data including patients hospitalized in intensive care unit during period from March 2011 to July2011 and having presented, at least one time, a platelet count <150 × 10^9/l. Included patients were prospectively followed until their discharge from ICU or their death.
Results and discussion: During our study, 130 patients were admitted to the intensive care unit and 50 cases of thrombocytopenia were recorded (38%). Thrombocytopenia in admission was noted in 25% of patients. The main risk factors associated with the occurrence of thrombocytopenia were sepsis, bleeding, acute respiratory distress syndrome, multiple trauma, and the presence of invasive intravascular catheters. The decision to transfuse platelets is dependent on the severity of the thrombocytopenia, its etiology and clinical impact. Mortality rate was 56%.
Conclusion: Thrombocytopenia is common in ICUs. Bleeding and sepsis are the major risk factors. Thrombocytopenia was a predictive factor of ICU mortality. Any therapies should be discussed case by case, but should never be generalized to all patients.
Key words: ICU, thrombocytopenia, risk factors, mortality.

INTRODUCTION

The discovery of thrombocytopenia is an extremely frequent situation in intensive care unit. The majority of studies have suggested that it extends the length of stay and increases the mortality rate. According to the standards of the different laboratories, the number of platelets is included between 150 and 500 G / L. Classically, thrombocytopenia is defined as a platelet countless than 150 G / L, but some of recently published studies sets a threshold below 100 G / L to define thrombocytopenic patients. [1] Over the last ten years, several studies have led to a better understanding of the pathophysiological mechanisms involved in the occurrence of thrombocytopenia. A large number of risk factors were identified in the intensive care unit patients. [2] It is necessary to make the etiologic diagnosis so that these patients can benefit from appropriate treatment. In general, real thrombocytopenia is due either to decreased production or to increased destruction and / or sequestration of platelets. The risk in intensive care units patients, already weakened is the appearance of potentially lethal hemorrhagic manifestations in a significant platelet decline. Thrombocytopenia is correlated with the risk of bleeding, which engage vital prognosis, but also with a prolonged period of hospitalization in intensive care units and a higher mortality rate. The hemorrhagic risk that can interfere with the management of a patient with organfailure requires the doctor to rapidly carry out the diagnostic assessment and begin a therapeutic strategy.

This strategy associates a possible modification of the treatments administered during the occurrence of thrombocytopenia, treatment according to the etiology, and transfusion taking into account its potential side effects. [3] The aim of this study was to specify the incidence of thrombocytopenia, the factors associated with the development of thrombocytopenia, and the impact of thrombocytopenia on the prognosis of patients hospitalized in the intensive care units of the Military Teaching Hospital Mohamed V Rabat Morocco.

PATIENTS AND METHODS

This is a prospective study, which was conducted between intensive care units and the laboratory of Hematology at the Military Teaching Hospital Rabat Morocco from March to July 2011. It involved all patients with platelets count <150G/L followed until their exits from the unit or death. For each patient were collected age, Sex, the diagnosis on admission, presence of intravascular catheters, therapeutics administered during the stay, the transfusion requirements for blood products labile concentrates, and laboratory data including blood count with platelet counts and exploring coagulation tests. All The events that occurred during the resuscitation have also been postponed; such as the occurrence of bleeding or septic shock. Data analysis were entered on the SPSS software 16.0

RESULTS

During our study, 130 patients were admitted to the intensive care unit. Main reasons for ICU admission included 29 infectious disease; 19 cases of trauma; 17 cases of hemorrhage; 16 cases of respiratory disorder; 15 cases of shock; 14 cases of neurologic disorders and 20 miscellaneous causes.

50 cases of thrombocytopenia were recorded (38%). 35were men (70%) and 15 were women (30%) with a sex ratio M/F of 2,33. The mean age was 55,25 years (13-81).

Thrombocytopenia occurred on average 2.8 days after admission and it was noted at admission in 25% of cases. The average length of stay was 28 days (2-129).

Of the 50 thrombocytopenic patients, sepsis was incriminated 25 times (50%) and bleeding occurred in 14 cases (28%).

In terms of therapeutics, catecholamines, heparin, antibiotics and corticoids were used and only 10 patients have required platelet transfusions (20%).

Concerning the outcome, 28 patients died (56%), 10 had well evolved and 12 were transferred to others services. Results are described in Tables I and II

Table I:Reasons for ICU admission

Admission diseases	n (%)
infectiousdisease	29 (22,30%)
trauma	19 (14,61%)
hemorrhage	17 (13,07%)
respiratorydisorder	16 (12,30%)
shock	15 (11,53%)
neurologicdisorders	14 (10,76%)
miscellaneous causes	20 (15,38%)

Table II: thrombocytopenic patients characteristics

Characteristics	n (%)
Prevalence of thrombocytopenia	50 (38%)
Sex M/F	35 (70%) /15 (30%)
Mean age	55,25 [13-81]*
length of stay	28 days [2-129]*
Platelets transfusion	10 (20%)
Risk factors :	
Sepsis	25 (50%)
Hemorrhage	14 (28%)
Other risk factors	11 (22%)
Outcomes :	
death	28 (56%)
good evolution	10 (20%)
transfer to other unit	12 (24%)

* average

DISCUSSION

Among critically ill medical patients, we found that 38% of patients had at least one platelet count of less than 150.10^9 /L, and that 25% had prevalent thrombocytopenia at the time of ICU admission. The incidence of thrombocytopenia found in this series is consistent with what is generally reported in the literature, 18-65% according to studies. [4-7] The disparity between the different incidences found is due to the lack of univocal biological criteria defining thrombocytopenia, the type of intensive care unit in which the study was performed, the

inclusion criteria and the populations studied. Thus, the highest incidences are observed in polytrauma patients, [8] septic patients [9] and hepatic transplant patients. [5] Thrombocytopenia in intensive care is often multifactorial. Many risk factors for the acquisition of thrombocytopenia have been identified. Thus, the existence of sepsis is a major risk factor for the onset of thrombocytopenia and has long been identified. [4,10] Indeed, thrombocytopenia is a marker of severity in sepsis [9] and its mechanisms are multiple including disseminated intravascular coagulation, [11] immunological platelet destruction [12,13] and macrophage activation syndrome. [14] In addition, bleeding appears to be a major factor in the onset of thrombocytopenia, a fact well recognized in intensive care, explained by the consumption and dilution coagulopathy caused by bleeding. [15-17] Other risk factors identified include acute respiratory distress syndrome, polytrauma, and the presence of a central catheter.

The majority of studies show that in patients with thrombocytopenia, mortality in intensive care units is significantly increased. [6,7,18] In our study, the mortality rate was 56%. Thrombocytopenia did not appear to be directly responsible for the excess mortality; it was more a marker of severity of patients. In fact, the results of the different studies diverge; Vanderschueren et al. found that the occurrence of thrombocytopenia was predictive of mortality in intensive care [19] and on the other hand, other investigators found thrombocytopenia alone did not aggravate the prognosis. [18,20] Furthermore, the presence of a decrease or a low increase in platelet count in patients admitted to intensive care was associated with poor prognosis. [21] However, the most important marker is the percentage of decreasing which seems to be a defining prognostic factor. In a recent study involving a large group of patients, a reduction of 30% or more of the initial platelet count was a predictor of mortality. [22] Thus, the persistence of thrombocytopenia and the absence of increased platelet counts are associated with an increased risk of mortality. [6] In contrast, correction of thrombocytopenia is considered a good prognostic factor. [22]

Most studies report an association between thrombocytopenia and prolonged stay in intensive care units. [4,18,19,23] In our study, the occurrence of thrombocytopenia was also associated with an increase in length of stay.

CONCLUSION

Thrombocytopenia is commonly observed in hospitalized patients in intensive care units, and may constitute a hematological emergency. The risk factors are probably numerous but largely dominated by sepsis and bleeding. The therapy should be discussed case-by-case but should not be generalized to all thrombocytopenic patients. Finally, it can be said that the appearance of thrombocytopenia is never an innocuous event in patient in ICU, it often reflects the severity and progression of an underlying pathology, so its correction seems a good prognostic factor.

REFERENCES

1. Stéphan F. Thrombopénies en réanimation, Réanimation (2008) 17, 339-347
2. Yoann PICARD, Thèse de doctorat en médecine, Université Henri Poincare, Faculté de médecine de Nancy, 2010.
3. Didier Gruson, Alexandre Boyer. Aspects thérapeutiques de la thrombopénie en réanimation. «www.srlf.org»,16 août 2011
4. Shalansky SJ, Verna AK, Levine M, Spinelli JJ,Dodek PM. Risk markers for thrombocytopeniain critically ill patients. Pharmacotherapy.2002; 22: 803-13.
5. Ben Hamida C, Lauzet JY, Rézaiguia-Delclaux S, Duvoux C, Cherqui D, Duvaldestin P et al. Effect of severe thrombocytopenia on patient outcomeafter liver transplantation. Intensive CareMed. 2003; 29: 756-62.

6. Akca S, Haji-Michael P, De Mendoça A, Suter P,Levi M, Vincent JL. Time course of platelet countin critically ill patients. Crit Care Med. 2002;30:753-6.
7. Masrouki S, Mebazaa MS, Mestiri T, BenAmmar MS. Analyse des facteurs de risquede mortalité chez les patients thrombopéniquesen réanimation. Ann Fr AnesthReanim.2004; 23: 783-7.
8. Hanes SD, Quarles DA, Boucher BA.Incidence and risk factors of thrombocytopenia in critically ill trauma patients. Ann Phamacother. 1997; 31: 285-9.
9. Brun-Bruisson C, Doyon F, Carlet J. Incidence, risk factors, and outcome of severe sepsis and septic shock in adults: A multicenter prospective study in intensive care units. JAMA. 1995; 274: 968-74.
10. Stephan F, Hollande J, Richard O, et al. Thrombocytopenia in a surgical ICU. Chest. 1999; 115: 1363–1370.
11. Levi M, Ten Cate H. Disseminated Intravascular Coagulation. NEngl J Med. 1999; 341: 586-92.
12. Bogdonoff DL, Williams SE, Stone DJ. Thrombocytopenia in the critically ill patients. J Crit Care. 1990; 5: 186-205.
13. Stephan F, Cheffi MA, Kaplan C, Maillet JM, Novara A, Fagon JI et al.Autoantibodies against platelet glycoproteins in critically ill patients with thrombocytopenia. Am J Med. 2000; 108: 554-60.
14. Stéphan F, Thiolière B, Verdy, Tulliez M. Role of hemophagocytic histiocytosis in the etiology of thrombocytopenia in patients with sepsis syndrome or septic shock. Clin Infect Dis. 1997; 25: 1159-64.
15. Aissaoui Y, Benkabbou A, Alilou M, Moussaoui R, El Hijri A, Abouqal R et al. Lathrombopénie en réanimation chirurgicale : incidence, analyse des facteurs de risque etimpact sur le pronostic. Presse Med. 2007; 36: 43–49 » www.masson.fr/revues.
16. Vanderschueren S, De Weerdt A, Malbrain M, Vankersschaever D, Frans E,Wilmer A, Bobbaers H. Thrombocytopenia and prognosis in intensive care. Crit CareMed 2000;28:1871-6.
17. Sharma B, Sharma M, Majumder M, Steier W, Sangal A, Kalawar M. Thrombocytopenia in septic shock patients--a prospective observational study ofincidence, risk factors and correlation with clinical outcome. Anaesth Intensive Care2007;35:874-80.
18. Strauss R, Wehler M, Mehler K, Kreutzer D,Koebnick C, Hahn E. Thrombocytopenia inpatients in the medical intensive care unit: bleeding prevalence, transfusion requirements, and outcome. Crit Care Med. 2002;30: 1765-71.
19. Vanderschueren S, De Weerdt A, Malbrain M, Vankersschaever D, Frans E, Wilmer A et al. Thrombocytopenia and prognosis in intensive care. Crit Care Med. 2000; 28: 1871-6.
20. Stephan F, De Montblanc J, Cheffi A, Bonnet F. Thrombocytopenia in critically ill surgical patients: a case-control study evaluating attributable mortality and transfusion requirements. Crit Care. 1999; 3: 151-8.
21. Nijsten MW, ten Duis HJ, Zijlstra JG, et al.Blunted rise in platelet count in critically ill patients is associated with worse outcome. Crit Care Med. 2000;28:3843– 6.
22. Moreau D, Timsit J-F, Vesin A, Garrouste-Orgeas M, de Lassence A, Zahar J-R, et al.Platelet count decline. An early prognostic marker in critically ill patients with prolonged ICU stay. Chest 2007;131:1735—41.
23. Crowther MA, Cook DJ, Meade MO, Griffith LE, Guyatt GH, Arnold DM, Rabbat CG, Geerts WH, Warkentin TE. Thrombocytopenia in medical-surgical critically ill patients: prevalence, incidence, and risk factors. J Crit Care 2005;20:348-53.

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