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721.ALLOGENEIC TRANSPLANTATION: CONDITIONING REGIMENS, ENGRAFTMENT AND ACUTE TOXICITIES

Impact of Anti-Thymocyte Globulin on Procalcitonin Levels Comparison during Fever in Allogeneic Stem Cell Transplantation Conditioning

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Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is a complex medical procedure that offers hope for patients with various hematological disorders. However, one of the significant challenges associated with allo-HSCT is the risk of infection, which remains a major contributor to non-relapse mortality. Detecting and managing infectious diseases in febrile patients during the pre-transplant conditioning phase is of utmost importance to ensure successful transplantation outcomes. In this context, procalcitonin (PCT) has emerged as a valuable diagnostic tool, serving as an auxiliary marker for severe infections. Additionally, PCT has shown promise as a predictor of infections in patients undergoing allo-HSCT. Its ability to aid in early detection and subsequent intervention has made it an attractive biomarker for clinicians. However, the interpretation of PCT levels in patients receiving anti-thymocyte globulin (ATG) as part of their pre-transplant conditioning has posed specific challenges.

ATG, a commonly used immunosuppressive agent in allo-HSCT, plays a vital role in reducing the risk of graft rejection and graft-versus-host disease. However, ATG administration is not without its drawbacks, as it can lead to various side effects such as fever and hypotension. These ATG-induced symptoms must be carefully distinguished from infectious diseases to ensure appropriate treatment decisions. One particular concern in this regard is the potential impact of ATG administration on PCT levels. Unfortunately, there is a paucity of data on PCT levels in febrile patients who have received ATG, making it difficult for clinicians to interpret the results accurately.

Furthermore, a comprehensive analysis comparing the increase in PCT levels during the conditioning phase for allo-HSCT and its associated risk factors in ATG and non-ATG regimens is lacking. Understanding how ATG affects PCT levels during febrile episodes and whether PCT can effectively discriminate between infections and ATG-related symptoms is crucial for optimizing patient care.

To address these gaps in knowledge, we conducted a retrospective analysis involving 76 patients who developed febrile episodes during the pre-transplant conditioning phase, and their PCT levels were measured and compared in our institution. Our study aimed to elucidate whether ATG administration could lead to increased PCT levels during febrile episodes in the context of pre-transplant conditioning and whether PCT could serve as a reliable marker for distinguishing infections during this critical period.

The findings of our analysis shed light on the complex relationship between ATG administration, PCT levels, and infectious diseases. Notably, ATG administration was identified as the sole significant factor contributing to increased PCT positivity during fever ($p = 0.01$). In contrast, the presence of infectious diseases did not significantly impact PCT positivity in the ATG group ($p = 0.24$). Intriguingly, bloodstream infection emerged as a significant risk factor for PCT positivity in patients who received non-ATG regimens ($p < 0.01$).

These results underscore the importance of considering ATG administration when interpreting PCT levels in febrile patients undergoing pre-transplant conditioning for allo-HSCT. The administration of ATG can confound the interpretation of PCT levels during febrile episodes, potentially leading to inaccurate diagnoses of infectious diseases. Clinicians must exercise caution and be aware of this confounding factor when incorporating PCT values into the diagnostic workup, particularly in patients receiving ATG regimens.

In conclusion, our study highlights the complexity of using PCT as a diagnostic marker in febrile patients undergoing pre-transplant conditioning for allo-HSCT. While PCT shows promise as a valuable tool for predicting and detecting infections, its interpretation must be approached with caution in patients receiving ATG regimens. Future research is warranted to further

elucidate the intricacies of PCT dynamics in the context of allo-HSCT, enabling clinicians to optimize its use and improve patient outcomes in this challenging and high-stakes medical procedure.

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