

abstract

Incidence of PEG-Asparaginase-Induced Pancreatitis in Children During Acute Lymphoblastic Leukemia Treatment: A Multicenter Study

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Incidence of PEG-Asparaginase-Induced Pancreatitis in Children During Acute Lymphoblastic Leukemia Treatment: A Multicenter Study

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Introduction: Acute Lymphoblastic Leukemia (ALL) is the most common childhood malignancy worldwide. PEG-Asparaginase (PEG-ASPA) is a cornerstone in ALL chemotherapy, significantly improving survival outcomes. However, it is associated with severe adverse effects, including acute pancreatitis (AP). The incidence and risk factors of AP in children with ALL in Saudi Arabia have not been extensively studied. This study aims to determine the prevalence of AP and identify associated risk factors among pediatric ALL patients receiving PEG-ASPA-based treatment in Saudi Arabia.

Methodology: This multicenter retrospective cohort study was conducted at three hospitals in Saudi Arabia: King Fahad Medical City-Riyadh (KFMC), King Abdullah Specialist Children's Hospital-Riyadh, and King Fahad Specialist Hospital-Dammam. Pediatric patients aged 1–14 years diagnosed with ALL and treated with PEG-ASPA-based regimens between January 2019 and October 2023 were included.

Results: A total of 322 pediatric patients were analyzed, with 83% (n=266) diagnosed with B-cell ALL. Male patients constituted 60% (n=192) of the cohort. Acute pancreatitis was identified in 16 patients, representing 5% of the total cohort. AP was most prevalent in patients over 10 years old (44%). Notably, 87% of AP cases occurred during the consolidation and interim maintenance 2 phases. Clinical symptoms of AP were present in 87% of cases, with abnormal amylase and lipase levels detected in 71% and imaging findings in 68% of cases. Supportive management resulted in clinical stability in 97% of patients, while the remainder experienced relapse or death due to unrelated factors.

Conclusion: The incidence of AP in children with ALL treated with PEG-ASPA in Saudi Arabia is consistent with international data. Further research is needed to explore risk factors for AP, allowing better risk stratification and improved management strategies for affected patients.