

Abstract

Differences in HbA1c Levels Before and After Glukokortikoid Administration in Pediatric Patients with Acute Lymphoblastic Leukemia Undergoing Induction Phase Chemotherapy

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Background: Acute Lymphoblastic Leukemia (ALL) is the most common hematologic malignancy in children. Treatment includes induction chemotherapy, which aims to achieve early remission and involves the use of glucocorticoids, such as prednisone or dexamethasone. Glucocorticoids are known to affect glucose metabolism and increase the risk of hyperglycemia. Although random blood glucose is often used, HbA1c provides a more stable indication of glycemic control over a longer period (approximately 2–3 months). This study assessed the impact of glucocorticoid administration on HbA1c levels in ALL patients before and after the induction phase.

Objective: This study used a one-group pre-post test design to assess differences in HbA1c levels before and after induction chemotherapy in 24 children with new ALL (aged 1–17 years) undergoing induction chemotherapy at Dr. Kariadi General Hospital, Semarang.

Results: No significant differences were found in HbA1c levels before (5.2% (4.0–6.4%)) and after induction chemotherapy (5.3% (4.4–6.9%)), ($p=0.097$). A significant correlation was found between pre-induction anemia and pre-induction HbA1c levels ($p=0.043$; $r=0.417$) and post-induction ($p=0.003$; $r=0.582$), as well as pre-induction nutritional status and pre-induction HbA1c levels ($p=0.015$; $r=0.490$).

Conclusion: Administration of glucocorticoids during induction chemotherapy in pediatric ALL patients did not significantly increase HbA1c levels. Further research is needed to monitor patients' glucose continuously.

Keywords: Acute lymphoblastic leukemia, Glucocorticoids, HbA1c