

Glutamine Mouthwash for Preventing Methotrexate-Induced Mucositis in Children with Acute Lymphoblastic Leukemia: A Randomized Cross-Over Trial

Original Article

Volume 62, Pages 269-275, April 2025

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Received: 5 December 2024 / Accepted: 11 February 2025 / Published online: 8 April 2025

<https://doi.org/10.1007/s13312-025-00042-4>

ABSTRACT

OBJECTIVES

To assess the efficacy of glutamine mouthwash versus standard oral hygiene protocol (SOHP) in reducing the overall incidence, duration and severity of oral mucositis in children with acute lymphoblastic leukemia (ALL) receiving High Dose Methotrexate (HDMTX).

METHODS

In this cross-over trial, children with ALL due to receive four courses of HDMTX (2 g/m² /dose) (on days 8, 22, 36, and 50 of consolidation) were randomized to receive two consecutive courses of HDMTX with glutamine mouthwash plus SOHP, followed by two HDMTX courses with SOHP only; or vice-versa. Glutamine suspension was administered twice daily by swish and swallow technique, starting one day before the course of HDMTX and continued upto 7 days or till mucositis persisted. SOHP comprised supervised brushing, chlorhexidine mouthwash, and clotrimazole mouth-paint. Severity of mucositis was graded using WHO grading and pain was assessed by Wong-Baker FACES Pain Rating Scale.

RESULTS

Sixty four courses of HDMTX were analyzed. The overall incidence of mucositis in the glutamine group was comparable to the SOHP group (71.8% vs 81.2%; P = 0.08). The glutamine group had a significantly lesser incidence of severe mucositis [3.1% vs 44%; RR (95% CI) 0.07 (0.01, 0.35); P < 0.001], shorter overall duration of mucositis [2 (0, 3) days vs 5 (3, 5) days, P < 0.001] and lower median (IQR) pain scores [4.5 (0, 6) Vs 8 (5.25, 8), P < 0.001].

CONCLUSION

Glutamine mouthwash is effective in reducing the incidence of severe mucositis and overall duration of mucositis and associated pain in children receiving HDMTX.

Keywords: Child · Chemotherapy · Cytotoxic · Oncology · Oral mucositis

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