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### Nutritional Interventions in Pediatric Patients With Acute Lymphoblastic Leukemia: A Systematic Review

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**Objectives:** To evaluate the effect of different nutritional interventions in children with a diagnosis of acute lymphoblastic leukemia (ALL) receiving antineoplastic treatment.

**Methods:** This systematic review (SR) was conducted based on a predefined protocol (PROSPERO: CRD42021266761). We searched for published or unpublished randomized trials in the following databases: Cochrane CENTRAL, MEDLINE, EMBASE, LILACS, SciELO and conducted complementary searches. Studies with at least 50% of the participants had a diagnosis of ALL, were  $\leq 18$  years of age, were receiving antineoplastic treatment and a nutritional intervention, were selected. Study selection, data extraction and assessment of risk of bias

were conducted independently by three reviewers. Variables related to nutritional status were evaluated for meta-analysis and narrative review.

**Results:** A total of 4097 records were found. Twenty-four full text papers (25 records) met the inclusion criteria. Seventeen studies had a high risk of bias. Intervention tested included honey,  $\omega$ -3 fatty acids, black seed oil, whey protein hydrolyzate, parenteral and enteral nutrition, probiotics, vitamin A, E, K and C, zinc and calcium. A random effect meta-analysis of mean difference for glutamine and vitamin D variables was performed. In the case of glutamine, a decrease in the number of days of hospitalization was seen in the intervention group vs control group ( $-3.44$  days; 95% CI:  $-5.1, -1.79$ ; 2 studies,  $I^2 = 85\%$ ).

**Conclusions:** Randomized trials focused on the nutritional treatment of pediatric patients with ALL are limited and the methodologies used are diverse. This SR highlights the need to develop high quality studies focused on these patients and their nutritional treatment, as well as standardizing nutritional intervention methodology depending on the patients' needs, to develop quality evidence that helps clinical decision making.

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