4CPS-110

USE OF ASPARAGINASE IN A TERTIARY CARE HOSPITAL. HOW TO DEAL WITH HYPERSENSITIVITIES?

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Background and importance

Asparaginase, derived from *Escherichia coli*, in its native (Kidrolase®) or pegylated (Oncaspar®) form, is a crucial component of multi-agent chemotherapy regimens for achieving optimal therapeutic outcomes in the treatment of acute lymphoblastic leukemia (ALL).

However, hypersensitivity reactions, both overt allergic responses and subclinical hypersensitivities (silent inactivation), can compromise the treatment's effectiveness. Due to the limited evidence supporting desensitization protocols in allergic patients, the search for less immunogenic variants without cross-reactivity has led to the use of Erwinase®, which has also shown efficacy in patients with silent inactivation.

Aim and objectives

This study aims to describe the use of Asparaginase in its various forms in pediatric patients with ALL at a tertiary care hospital. We analyzed the reasons for switching from Kidrolase® and Oncaspar® to Erwinase® and evaluates the prevalence of allergic reactions and silent inactivation with each formulation.

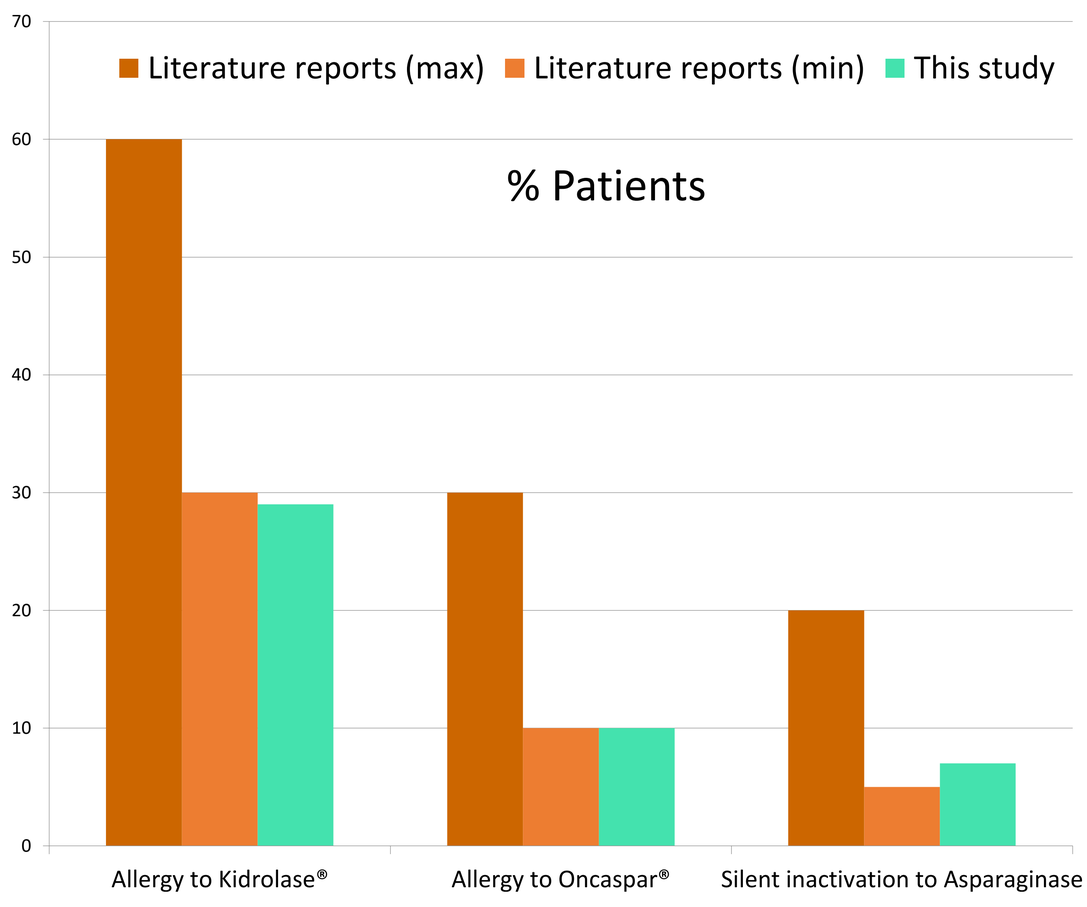
Materials and methods

Observational, retrospective, single-center study that included all pediatric patients treated with Asparaginase from January 2011 to August 2024.

Clinical data and allergic reactions were collected using the hospital´s electronic medical report program and the oncohematologic software Farmis-Oncofarm®. The Medicine Laboratory reported on silent inactivating patients detected as of June 2022, when the measurement technique was implemented at the centre.

Results

A total of 221 patients received Asparaginase: 110 started with Kidrolase®, of which 30 were switched to Oncaspar® due to changes in hospital protocols, and 111 initiated treatment with Oncaspar®. Nineteen percent of patients (42/221) required a switch to Erwinase®: 37 due to allergic reactions and 5 due to silent inactivation. Allergic reaction rates were 29% (23/80) with Kidrolase® and 10% (14/141) with Oncaspar®. Silent inactivation was detected in 5 patients, with a prevalence of 7% (5/72).



Conclusion and relevance

- ✓ A significant percentage of patients required a switch to Erwinase®, primarily due to allergic reactions.
- ✓ The prevalence of allergies and silent inactivation was comparable to literature reports, which report allergy rates of 30–60% to Kidrolase® and 10–30% to Oncaspar®, as well as subclinical hypersensitivities to Oncaspar® ranging from 5–20%.
- ✓ Erwinase® has been a therapeutic breakthrough in ALL, allowing treatment of allergic patients or silent inactivators.