VINCRISTINE-INDUCED NEUROTOXICITY IN EGYPTIAN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA

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Introduction

Vincristine-induced neuropathy (**VIN**) is widely known in children with acute lymphoblastic leukaemia (**ALL**). However, limited national data have documented its incidence, severity, and outcome due to the variability in neuropathy assessments.

Objectives

To evaluate the prevalence, risk factors, clinical characteristics, and management of VIN in children with ALL.

Methods

- We performed **a descriptive retrospective study** of children diagnosed with ALL from January 2010 to December 2020 to identify those with documented VIN clinically and by nerve conduction velocity (NCV).
- Data was collected from patient medical records on a predesigned form to include demographic and clinical characteristics, chemotherapy used severity, outcome and management.
- Variables were analyzed to identify risk factors for VIN, including age, weight, ALL risk classification, protocol used and the cumulative dose of VCR at the onset of VIN.

Results

- **Sixteen** out of 163 **(9.82%)** had VIN during the study period. **Twelve** had VIN only (70.6%), and **four** had combined Vincristine and methotrexate neurotoxicity.
- Neurotoxicity was mainly in **induction** (n=11, 68.8%)
- There is a wide range (9-518 days) of time to develop VIN.
- All patients need **dose modification**, and nine require interruption of their chemotherapy
- There was no effect of the types of leukaemia (B or T cell) on the survival analysis time till the development of VIN (p=0.499). Fig 1

Results

Those who developed neurotoxicity were:

- Older (p=0.031),
- With a lower number of them in the low-risk group (p=0.004),
- Had a higher frequency of receiving the aminoglycoside and
- An increase in weight and SDS weight (p=0.000, 0,009 respectively).

The univariate and multivariate logistic regression analysis showed that the most important factors related to neurotoxicity were:

- Weight of patients was > 35 kg,
- Receiving a total XV protocol (p=0.003),
- Receiving aminoglycoside (p= 0.025),
- PT >17.8 (sec) and
- Risk stratification

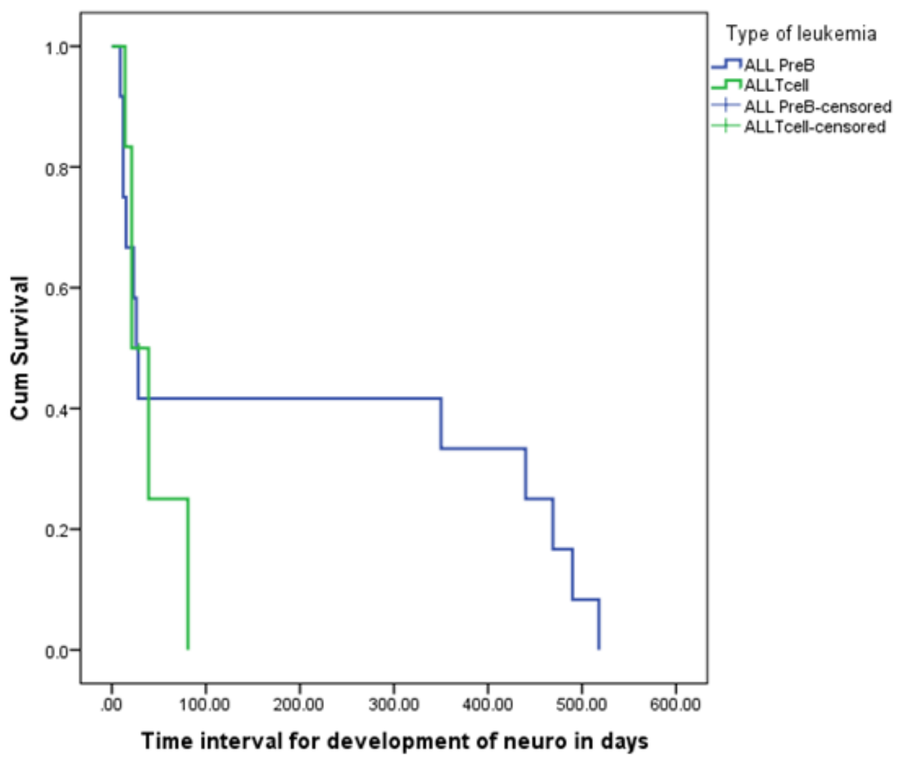


Fig 1: Survival analysis time till the development of neurotoxicity in different types of leukaemia

Summary

VIN in children with ALL is a prevalent complication, especially in those receiving total XV protocol, which necessitates early diagnosis and management.

Discussion

These preliminary results showed that there is a lack of local standardized guidance for patients who developed neurotoxicity, and an institutional and national registry for chemotherapy-induced toxicity is an essential step to develop local guidance.

References

1.Crit Rev Oncol Hematol 2017; 114: 114-130

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