

Quantification of Toxicities Related to Treatment of Pediatric Cancers and Hematological Disorders for Epidemiological Studies

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INTRODUCTION

Pediatric cancers are the leading cause of death in children past infancy in the United States, even though their incidence is rare among children and adolescents.¹ As a part of the *Case Ascertainment for Epidemiological Studies of Childhood Cancers and Hematological Conditions* used by the Adolescent and Childhood Cancer Epidemiology and Susceptibility Service for Texas (ACCESS), the goal of this project was to establish a cohort of patients, with pediatric cancer or hematologic conditions, to be utilized in future epidemiological studies. Epidemiological characteristics, such as DNA polymorphisms and plasma protein levels that are indicative of environmental, dietary, and infectious exposures, can be compared between pediatric cancer or hematological disorder patients and healthy controls, to potentially identify risk factors for development of these life-altering pediatric conditions.

METHODS

Our contribution involved identifying currently enrolled or eligible patients, documenting former treatments, and subsequently the identification, description, and consolidation of toxic events experienced during each patient's treatment course. Toxicities that met the ACCESS criteria for a grade 3 toxicity or higher, were then entered into the ACCESS database along with corresponding patient treatment information and outcomes. All children and adolescents diagnosed with a childhood cancer or hematological condition are eligible for participation in the study. Additional components of the study at-large include collection and analysis of blood, saliva, buccal brushings, urine, and cerebral spinal fluid from enrolled patients and their direct relatives for markers of toxic exposures.

Chart 1: Toxicities Identified

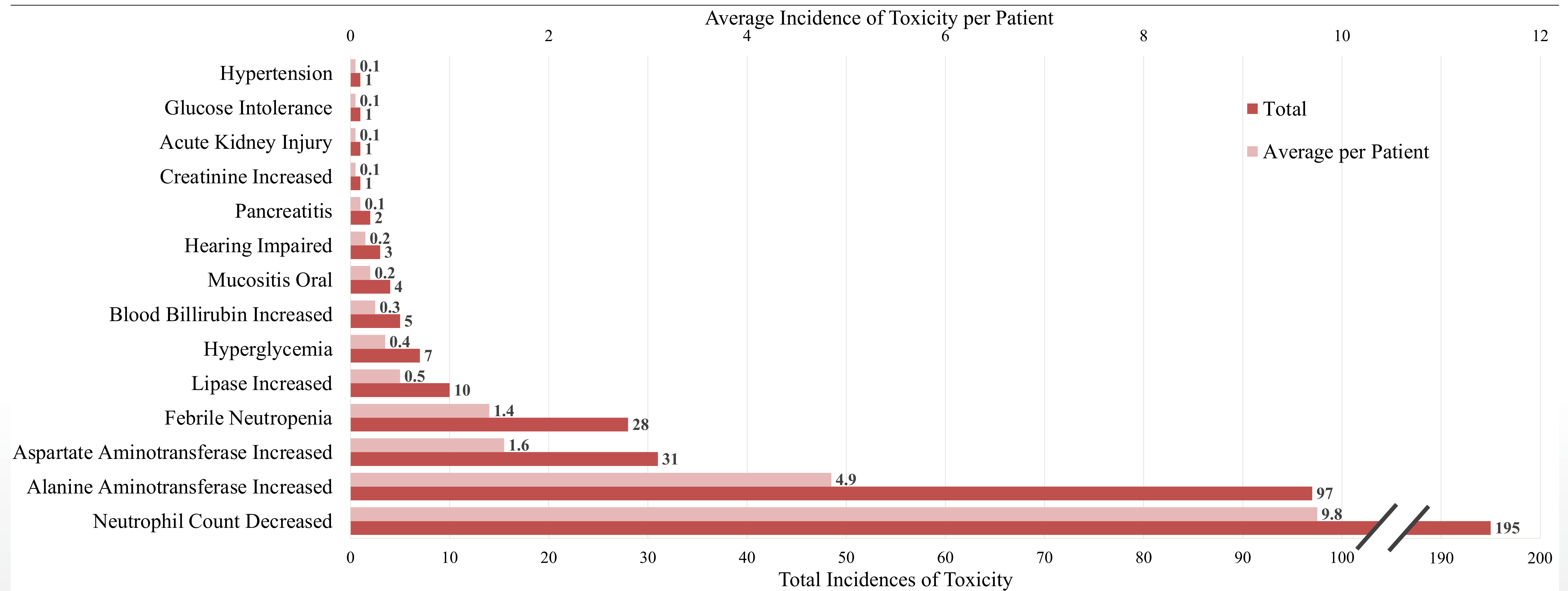


Table 1: Data Collection

	Total	Average per patient (SD)
Time on treatment (days)	12,314	615 (436)
Protocol phases	79	4.0 (1.9)
Toxicities	386	19.3 (14.8)

RESULTS

20 patients were enrolled in the study during our course of investigation: 13 (65%) were male with an average age of 6.3 (SD 3.7) at the onset of treatment. Patients experienced an average of 19.3 (SD 14.8) toxicities while on treatment. Each treatment protocol averaged 4.0 (SD 1.9) unique phases. Preliminary findings suggest neutropenia to be the most common toxicity with 19 (95%) patients experiencing at least once incidence and an average of 9.8 (SD 7.5) incidences of neutropenia per patient.

CONCLUSION

This data extraction and entry enhanced the size of the data pool for meaningful observations and analysis to be made in the future. This collaboration across seven different academic institutions will expedite future epidemiologic studies exploring risk factors, and ultimately better predict, treat, and cure pediatric cancer and hematologic conditions.

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REFERENCES

1. Cancer in Children and Adolescents. National Cancer Institute. 2021 Nov 10.