

RESULTS OF DEVELOPMENTAL SCREENINGS OF CHILDREN NEWLY DIAGNOSED WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)

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Developmental vulnerability refers to early atypical motor, language, social or cognitive development. The prevalence and nature of developmental vulnerabilities in the ALL population is unknown and children who have pre-existing developmental vulnerabilities are routinely excluded from long-term cognitive outcome studies^{1,2}. However, clinical experience suggests that they may experience poorer outcomes than their normally-developing ALL counterparts and early identification of this subgroup is necessary to provide appropriate interventions.

Purpose: To conduct standardized developmental screenings of all newly diagnosed children with ALL to explore the nature and frequency of developmental vulnerabilities in this population.

Methods: All eligible parents of children (2-18 years) newly diagnosed with ALL at the Hospital for Sick Children over a 1-year period were invited to participate. Exclusion criteria was insufficient facility in English to complete parent interview (n=3). Forty of 53 eligible parents participated. The majority of the children of participating parents were male (65%) with a mean age of 5.9 years (sd = 4.4). Sixty-eight percent (27/40) of the children were given standard-risk treatment; the remainder received a high-risk protocol. Parent-ratings of development were obtained using The Developmental Profile – 3 (DP-3)³. The DP-3 is a standardized and normed parent interview that assesses child development in five domains: physical, social-emotional, adaptive, cognitive, and communication. Parents also completed a Developmental History form designed for this study that elicited information regarding developmental delays, diagnoses or services. Children were identified as Developmentally Vulnerable if an overall General Development Score (GDS; m = 100, sd =15) on the DP-3 was more than 1 SD below the mean (≤ 84) or parent-report on the Developmental History form was positive for a developmental delay, diagnosis, or prior therapy or special education services.

Results: Eleven out of the 40 children screened (28%) were identified as Developmentally Vulnerable due to a low overall DP-3 score (4/11) or positive responses on the Developmental History form (7/11). Positive responses on the Developmental History form included delayed early motor or language milestones (5/11); diagnosis of a developmental disorder (2/11); treatment received for physical or speech delays (6/11); head injury or seizure (3/11); or, special education services (4/11). The typically-developing ALL controls (29/40) were rated as average to above average overall on the DP-3 (m = 111.8; sd = 13.7).

Conclusion: These results indicate that it is feasible to screen for pre-morbid developmental vulnerabilities in children newly diagnosed with ALL using a standardized parent-interview and history form. The rate (28%) of developmental vulnerabilities in this population is notable, particularly because this subset of children has routinely been excluded from long-term neurocognitive outcome studies. The next stage of this research will compare the long-term neurocognitive, behavioral and quality of life outcomes of the developmentally vulnerable group relative to ALL controls.

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