

Symptom and Biological Profiles of Leukemia Patients during Chemotherapy: Preliminary Results

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Introduction

- Acute Lymphoblastic Leukemia (ALL) is the most common cancer diagnosed in children and represents approximately 25% of cancer diagnoses among children younger than 15 years.¹
- Long term chemotherapy (induction, consolidation, maintenance phases) is the most common treatment for this type of cancer.²
- With new treatments, the survival rate in children with ALL is increasing. Among children with ALL, approximately 98% attain remission.³
- Treatment-related symptoms adversely affect health related quality of life.⁴ However, the etiology of these symptoms remain unknown.

Objectives: to describe the symptoms profile and their biological correlates in children with ALL while receiving chemotherapy.

Method:

- This preliminary report is part of an active IRB-approved research study (protocol # 724195).
- Children (ages 5-21 years) with ALL scheduled to receive chemotherapy at Children's Specialty Center of Nevada Las Vegas were recruited into the study.
- Participants completed the Patient Reported Outcome Measurement Information System (PROMIS) scales (physical function, anxiety, depressive symptoms, fatigue, peer support, pain interference) at baseline, before chemotherapy and during their second visit of their chemotherapy cycle.
- Complete blood count and metabolic panel were obtained from medical charts.
- Data was analyzed by SPSS version 22.

Results:

- Ten participants age 5-16 years old (6 boys and 4 girls) diagnosed with ALL were included in this analysis.

Table 1: Demographic and Clinical Characteristics of the Sample

Variables	n (%)
Age	
5-10	8 (80%)
11-15	1 (10%)
15-20	1 (10%)
Gender	
Boy	6 (60%)
Girl	4 (40%)
Diagnosis	
B-cell ALL, Average risk	7 (70%)
B-cell ALL, High risk	2 (20%)
B-cell ALL, Very high risk	1 (10%)
Treatment phase	
Consolidation	2 (20%)
Maintenance	8 (80%)

Results (cont.):

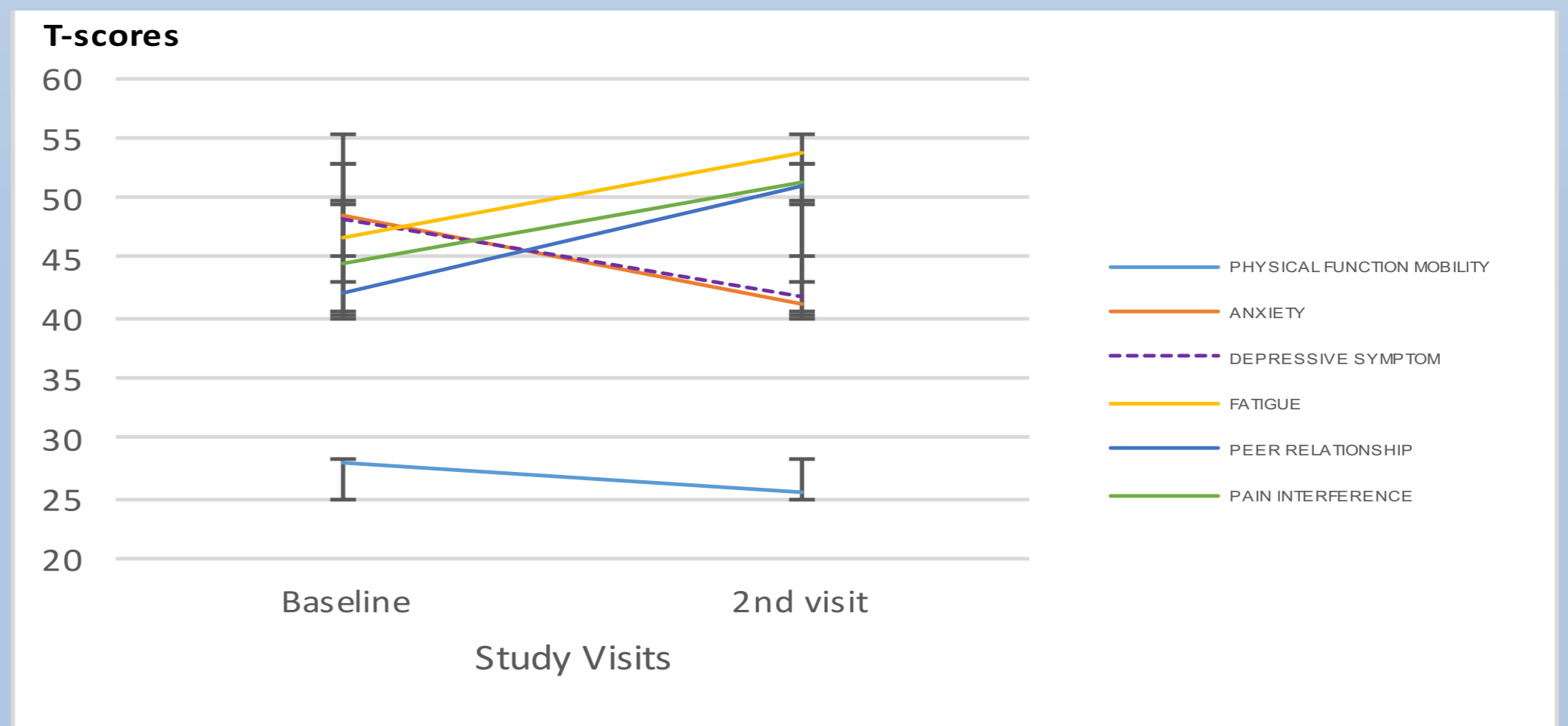


Figure 1: Change of Symptoms at second visit from Baseline

- Participants experienced ↓ anxiety, ↓ depressive symptoms, but ↑ fatigue with no change in pain severity from baseline to the 2nd visit (mean pain intensity baseline 2.10/10, SD =3.11, 2nd visit 2.45/10, SD= 2.67)

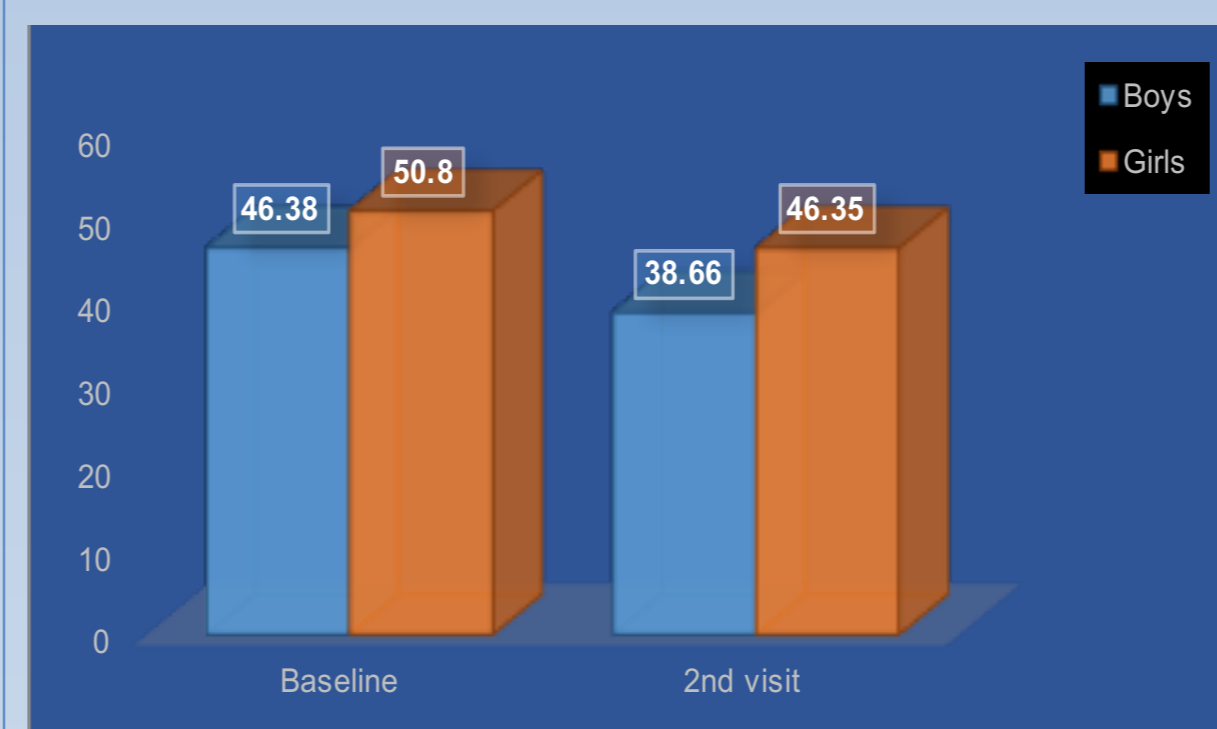


Figure 2: Change in depressive symptoms between boys and girls.

- At the second visit, boys reported significantly lower depression score (38.67 ± 2.4) than girls (46.35 ± 6.8 , $p = 0.03$).

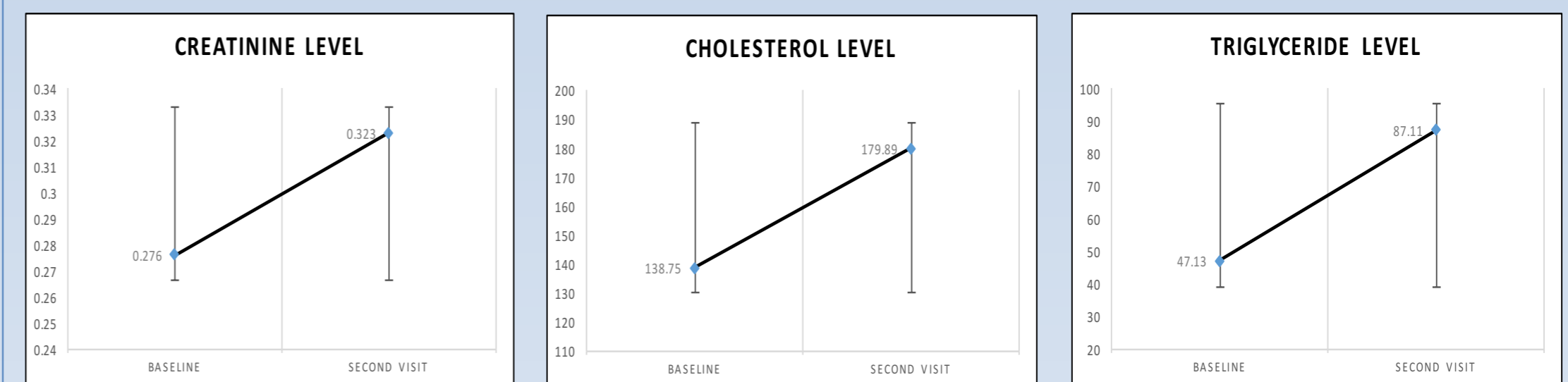


Figure 3: Changes in creatinine, cholesterol and triglyceride levels.

- Creatinine, cholesterol and triglyceride levels increased significantly at the second visit compared to baseline ($p < 0.05$).

Conclusion and Discussion:

- Children with ALL experience increasing fatigue during chemotherapy. Management of fatigue is warranted to improve the quality of lives and treatment outcomes of these children.
- Depression is a significant problem reported by children with ALL the first year since diagnosis.⁵ We found that boys reported significantly higher depressive symptoms than girls. This gender difference must be further explored.
- Increasing cholesterol and triglyceride levels during chemotherapy suggest enhanced metabolic activity during chemotherapy,⁶ which may influence symptoms experience and treatment outcomes. This significant result must be further evaluated.

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