

Does vincristine chemotherapy decrease ankle dorsiflexion range of motion and lower extremity function in adults with Acute Lymphoblastic Leukemia?

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INTRODUCTION

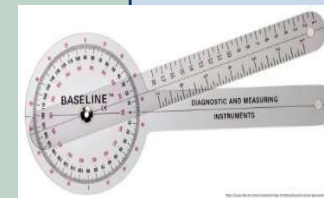
- Acute Lymphoblastic Leukemia (ALL) treatment with vincristine: documented to decrease ankle dorsiflexion range of motion (DF-ROM) and impair mobility in children.
- Physiotherapists (PT): provide routine preventative assessment and treatment for these children.
- Limited Data: Mobility and physical function in adults with ALL treated using vincristine.

AIMS

To determine the effect of vincristine on DF-ROM and lower extremity function in adult ALL.

METHODS

- DF-ROM (active/passive): measured by PTs using goniometer pre/post chemotherapy.
- Lower Extremity Functional Scale (LEFS) questionnaire: completed at the time of DF-ROM measurement.



Lower Extremity Functional Scale (LEFS) questionnaire

We are interested in knowing whether you are having any difficulty at all with the activities listed below because of your lower limb problem for which you are currently seeking attention. Please provide an answer for **each** activity.

Today, do you or would you have any difficulty at all with:

(Circle one number on each line)

Activities	Extreme Difficulty or Unable to Perform Activity	Quite a Bit of Difficulty	Moderate Difficulty	A Little Bit of Difficulty	No Difficulty
a. Any of your usual work, housework, or school activities.	0	1	2	3	4
b. Your usual hobbies, recreational or sporting activities.	0	1	2	3	4
c. Getting into or out of the bath.	0	1	2	3	4
d. Walking between rooms.	0	1	2	3	4
e. Putting on your shoes or socks.	0	1	2	3	4
f. Squatting.	0	1	2	3	4
g. Lifting an object, like a bag of groceries from the floor.	0	1	2	3	4
h. Performing light activities around your home.	0	1	2	3	4
i. Performing heavy activities around your home.	0	1	2	3	4
j. Getting into or out of a car.	0	1	2	3	4
k. Walking 2 blocks.	0	1	2	3	4
l. Walking a mile.	0	1	2	3	4
m. Going up or down 10 stairs (about 1 flight of stairs).	0	1	2	3	4
n. Standing for 1 hour.	0	1	2	3	4
o. Sitting for 1 hour.	0	1	2	3	4
p. Running on even ground.	0	1	2	3	4
q. Running on uneven ground.	0	1	2	3	4
r. Making sharp turns while running fast.	0	1	2	3	4
s. Hopping.	0	1	2	3	4
t. Rolling over in bed.	0	1	2	3	4
Column Totals:					

SCORE: ____/80

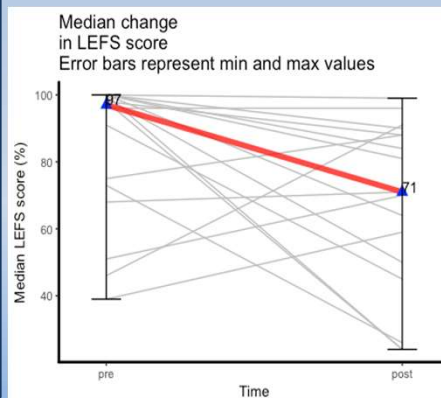
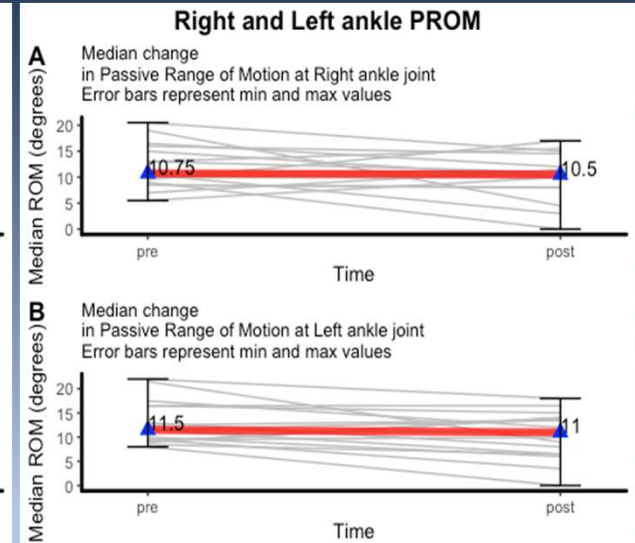
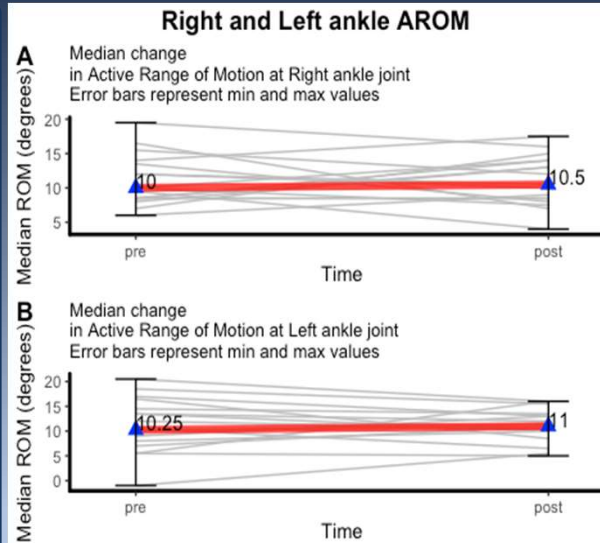
Error (single measure): ± 5 scale points

MDC: 9 scale points

MCID: 9 scale points

RESULTS

- 18 participants age 18+ with ALL consented
- 1 withdrew, 17 completed
- Female sex 33.3%
- Median age 42.5 years
- Pediatric ALL protocol 33.3%
- Adult ALL protocol 66.7%
- Active and passive ROM: no statistically significant change after vincristine.
- LEFS reduced by 26% from baseline after vincristine. Not statistically significant.
- Clinically significant number (8/17) reported a decrease in LEFS.



Reduced LEFS?

No
52.9
%

Yes
47.1
%

LIMITATIONS & RECOMMENDATIONS

- ☐ Other medications (methotrexate and prednisone) may also confound our results.
- ☐ Activity limitation from other causes e.g. peripheral neuropathy, nausea, fevers, edema may result in decreased LEFS.
- ☐ Small sample size: requires larger prospective study.

CONCLUSIONS

- ☐ Our study confirmed a clinically significant decline in LEFS score in adult ALL patients who received vincristine.
- ☐ Larger multi-centre study is required to confirm our findings.
- ☐ Based on our results: PT and OT services could possibly be valuable in this group of patients and should be further studied.
- ☐ Research is possible around a full in-patient Physiotherapy caseload!