BALANCE IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA: A REVIEW

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Background

Acute Lymphoblastic Leukemia (ALL) is the most common type of pediatric cancer and its incidence is steadily increasing. Since the survival rate has increased significantly, now more attention is shifted toward alleviating treatment side effects. One of the least investigated side effects is balance impairment. It has been demonstrated that chemotherapy can impact balance by different mechanisms, including peripheral neuropathy, interruption between spinal cord and cortical areas, cognitive impairment, and reduced muscle strength and flexibility. Considering the important role of balance in child psychomotor development and the typical early onset of ALL, children with ALL are at high risk for developing other motor impairments which could further impact the child’s quality of life.

Purpose

A review was conducted to investigate the effects of cancer treatment on balance performance in children with ALL both during and after the completion of chemotherapy.

Methodology

Search engines: Medline, Cochrane, CINHAL, PsycINFO, Embase and PEDro

Time frame: Articles published between January 1994 to May 2014


To be included studies should:

1) Be an original research article
2) Have a full text version available in English
3) Have measured balance as a primary or secondary outcome during or after treatment for pediatric ALL
4) Have reported the results of balance assessment

Conclusions

- The differences in age at diagnosis, age at time of evaluation, treatment, evaluation time (during or after end of treatment) and methods of quantifying balance make it difficult to reach a single conclusion.
- 5 out of 8 included studies identified significant balance problems in children with ALL during or after treatment.
- The effect of sex and other potential predictors on balance in children with ALL need to be further elucidated.
- There is evidence to suggest that survivors of ALL may experience short and long term balance difficulties, however more longitudinal studies with larger sample sizes are needed to determine the impact of treatment on balance.
- Identifying the presence and severity of balance impairment can help in clinical decision making. Addressing balance impairment may positively impact the activity and participation level and improve child’s quality of life.
- Based on the results of this review, balance evaluation is recommended for all ALL patients and survivors.

References

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