Cochrane Cameroon

INTERNATIONAL CHILDHOOD CANCER DAY

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This document provides healthcare professionals with up-to-date evidence on preventive and curative therapies for childhood cancer

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Table of content

Editorial 3

The situation of childhood cancer in Cameroon 4

Summaries of Systematic Reviews 5

1. Medicines to prevent hearing loss in children receiving platinum chemotherapy for cancer 5
2. What are the effects of physical therapy interventions before, during, and after childhood cancer treatment? 7
3. Can the medicine dexrazoxane prevent or reduce heart damage in adults and children with cancer receiving anthracyclines? 8
4. Adverse effects on the liver after treatment for childhood cancer 11
5. Severe fatigue after treatment for childhood cancer 12

Conclusion 14

Editorial

Every year on 15 February, the world unites for one crucial reason: to fight paediatric cancer. Established in 2002 by Childhood Cancer International (CCI), International Childhood Cancer Day (ICCD) aims to raise public awareness of a reality that is often overlooked and neglected.

Paediatric cancers are rare and heterogeneous diseases, encompassing more than 60 different types of cancer such as lymphomas, osteosarcomas, leukaemia among others. Although studies on cancer have improved our understanding of the processes involved in transforming a normal cell into a cancerous one, the World Health Organisation (WHO) admits that it has not identified the origins of paediatric cancers. Yet the WHO estimates that around 400,000 new cases are detected each year across the globe, most of them living in low-income countries where medication is unaffordable or unavailable, leading to a crushing mortality rate of 70%. In high-income countries, more than eight out of ten children diagnosed with cancer are cured (WHO, 2025).

In low- and middle-income countries, survival rates for children with cancer are often less than 30%, which is significantly lower than survival rates in high-income countries.

Childhood cancer is a rare disease, accounting for an estimated 0.5% to 4.6% of all human cancers. However, they are the second most common cause of death in children. Around 80% of children with cancer come from developing countries.

The World Health Organization (WHO) and St. Jude Children's Research Hospital have begun distributing essential paediatric cancer treatments in three of the six countries involved in the pilot phase of the Global Platform for access to Childhood Cancer Medicines.

This platform represents the largest financial commitment ever made to pediatric cancer drugs on a global scale. Its ultimate aim is to provide medicines for the treatment of around 120,000 children with cancer in low- and middle-income countries, thereby significantly reducing mortality rates. It marks the beginning of a global movement to provide children with cancer with the medicines they need, regardless of where they live or their ability to pay.

Target audience for this summary of systematic reviews

Decision-makers, professionals and all other stakeholders involved in the fight against childhood cancer.

Why was this synthesis produced?

Provide up-to-date information on the treatment and consequences of childhood cancer.

What is a systematic review?

A summary of studies that answers a clearly formulated question and uses systematic and explicit methods to identify, select and critically appraise relevant studies. Data from different studies are extracted and can be analysed together using meta-analysis techniques.

The situation of childhood cancer in Cameroon

In Cameroon, paediatric cancer is a major public health issue, with almost 1,000 new cases detected each year among children and adolescents under the age of 19.

At the Mother and Child Centre of the Chantal Biya Foundation in Cameroon, there are 150 new cases of paediatric cancer every year with every type of paediatric cancer being included.

At the time of diagnosis, 30% of cases are already incurable, 20% of patients interrupt their treatment and 90% reach an advanced stage of the disease. The main reasons frequently given by families for discontinuing treatment are: insufficient financial resources and preference for other forms of therapy. (Pondi & al., 2019).

Among Cameroonian children, lymphomas, particularly Burkitt lymphoma, are the most common forms of cancer. They are followed by retinoblastoma (eye cancer) and nephroblastoma (kidney cancer) (Sando, 2020).

The treatment of children diagnosed with cancer in Cameroon has benefited from significant progress recently. For example, a paediatric haemato-oncology service has been set up at the Mother and Child Centre of the Chantal Biya Foundation in Yaounde, offering treatments such as chemotherapy, surgery and radiotherapy. Despite these advances, a number of challenges persist, in particular late diagnosis, inadequate resources and lack of awareness of the disease.

In addition to the shortcomings observed, representations of childhood cancer in Cameroon help to build and maintain the coexistence of three therapeutic models. Although care is a biomedical competence, religious and popular conceptions are omnipresent and pervade biomedical practices (Fosso & al., 2023).

Organisations such as the Cameroon Paediatric Oncology Group are firmly committed to the battle against paediatric cancer in Cameroon.

1. Medicines to prevent hearing loss in children receiving platinum chemotherapy for cancer

Review question

We reviewed the evidence of the effectiveness of any medical intervention to prevent hearing loss in children with cancer treated with platinum-based therapy (i.e. including the anticancer drugs cisplatin, carboplatin, oxaliplatin or a combination of these). We also looked at anticancer effectiveness, side effects other than hearing loss and quality of life.

Background

Platinum-based chemotherapy, including cisplatin, carboplatin, oxaliplatin or a combination of these, is used in the treatment of different types of childhood cancer. Unfortunately, one of the most important side effects of platinum chemotherapy is hearing loss. This can occur not only during treatment but also years after the end of treatment. Although it is not life-threatening, the loss of hearing, especially during the first three years of life, may lead to difficulties with school performance and psychosocial functioning. Prevention of platinum-induced hearing loss is thus very important and might improve the quality of life of children undergoing cancer treatment and those who have survived treatment with platinum-based chemotherapy.

Study characteristics

The evidence is current to January 2019.

We found two randomized studies (clinical studies where people are randomly put into one of two or more treatment groups) and one controlled study (clinical studies where people are put into one of two or more treatment groups but this is not done in a random way) (149 participants), all comparing amifostine with no additional treatment. Two studies included children with osteosarcoma (a type of bone cancer), the other study included children with hepatoblastoma (a type of liver cancer). Combining the results of the included studies was not possible. It is not clear how long participants were monitored. We also found one randomized study (109 children with localized hepatoblastoma) comparing sodium thiosulfate with no additional treatment. Half of the participants were monitored for more than four years.

Key results

At the moment there is no evidence from individual studies showing that the use of amifostine prevents hearing loss. Only one study reported results on cancer response and side effects, so we could make no definitive conclusions. None of the studies assessed survival and quality of life. Hearing loss seemed to be lower with the use of sodium thiosulfate, but the effect of sodium thiosulfate on cancer response and side effects was uncertain. We identified no adequate studies for other possible drugs to prevent hearing loss and for other types of cancer. Before definitive conclusions can be made about the usefulness of possible medicines to prevent hearing loss (amifostine, sodium thiosulfate or another medicine) in children treated with platinum chemotherapy more high-quality research is needed.

Quality of the evidence

The quality of the evidence was moderate (for hearing loss with sodium thiosulfate) to low (for all other outcomes (results)). The quality of the evidence was limited because of issues with the study design (for all outcomes) and small numbers of participants in each study (for all outcomes except hearing loss with sodium thiosulfate).

Authors' conclusions

Implications for practice

At the moment there is no evidence from the individual studies (two randomized controlled trials (RCTs) and one controlled clinical trial (CCT)) in children with osteosarcoma and hepatoblastoma treated with different platinum analogues and dosage schedules which underscores the use of amifostine as an otoprotective intervention as compared to no additional treatment. Since pooling of results was not possible, and the certainty of the evidence was low, no definitive conclusions can be made. It should be noted that 'no evidence of effect', as identified in this review, is not the same as 'evidence of no effect'. Based on the currently available evidence (low certainty) we are unable to draw conclusions on the benefits and harms of amifostine.

Since only one RCT evaluating the use of sodium thiosulfate in children with localized hepatoblastoma treated with cisplatin was identified, no definitive conclusions can be drawn. However, there was a significant difference in the occurrence of ototoxicity in favour of sodium thiosulfate (moderate-certainty evidence), while there were no differences between treatment groups in antitumour efficacy and adverse effects (low-

certainty evidence). It should be noted that 'no evidence of effect', as identified in this review, is not the same as 'evidence of no effect'. Based on the currently available evidence (moderate to low certainty), we are unable to draw definitive conclusions on the benefits and harms of sodium thiosulfate.

For other possible otoprotective medical interventions and other types of malignancies we identified no RCTs or CCTs, so no conclusions can be made about their efficacy in preventing ototoxicity in children treated with platinum-based therapy. Based on the currently available evidence we are unable to draw conclusions.

Citation: van As JW, van den Berg H, van Dalen EC. Medical interventions for the prevention of platinum-induced hearing loss in children with cancer. Cochrane Database of Systematic Reviews 2019, Issue 5. Art. No.: CD009219. DOI: 10.1002/14651858.CD009219.pub5.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD009219.pub5/full/fr#CD009219-abs-0009

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2. What are the effects of physical therapy interventions before, during, and after childhood cancer treatment?

Review question

We reviewed the evidence on the effects of physical therapy interventions, other than general physical exercise interventions, on the quality of life of children and adolescents diagnosed with cancer compared to a control group of children receiving standard care, no physical therapy intervention or a comparison intervention. We also reviewed the occurrence of any harms (adverse effects) resulting from the physical therapy interventions. For the purpose of this review, physical therapy interventions of interest had to have a focus on symptom relief or address therapy-related side effects (symptoms and impairments). We excluded studies examining general physical exercise interventions where the primary aim was to improve physical fitness through aerobic exercise, resistance exercise or combined physical exercise training regimens (i.e. combined aerobic and resistance exercise regimens).

Background

Children and adolescents with cancer often have side effects from cancer and its treatments. These side effects can negatively impact a child's quality of life and ability to participate in daily activities such as play. Researchers have carried out studies that examine physical therapy interventions in children with cancer. However, the benefits of physical therapy are unclear.

Study characteristics

The evidence is current to March 2020. We did not identify any eligible studies.

Key results

We did not identify any studies that examined on the effects of physical therapy interventions on the quality of life of children and adolescents diagnosed with cancer, compared to a control group of children receiving standard care, no physical therapy intervention or a comparison intervention. Thus, no conclusions can be made. Our results show that further research is needed examining the effects of physical therapy interventions in children and adolescents with cancer.

Authors' conclusions

Implications for practice

Results obtained in this review demonstrate that research evidence is lacking to inform clinical practice. Since research data are lacking, physical therapists should consider other approaches to exchange expertise, such as workshops, meetings, online platforms, interviews and Delphi techniques.

Citation: Ospina PA, McComb A, Pritchard-Wiart LE, Eisenstat DD, McNeely ML. Physical therapy interventions, other than general physical exercise interventions, in children and adolescents before, during and following treatment for cancer. Cochrane Database of Systematic Reviews 2021, Issue 8. Art. No.: CD012924. DOI: 10.1002/14651858.CD012924.pub2. https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD012924.pub2/full#CD012924-abs-0002

3. Can the medicine dexrazoxane prevent or reduce heart damage in adults and children with cancer receiving anthracyclines?

Review question

We reviewed the evidence regarding the effectiveness of the medicine dexrazoxane to prevent or reduce heart damage in children and adults with cancer treated with anthracycline chemotherapy. We also looked at the possible effects of dexrazoxane on antitumour effectiveness (that is, survival and tumour response rate), quality of life and adverse effects (i.e. unwanted or harmful effects of a treatment) other than cardiac damage.

Background

Anthracyclines are effective chemotherapy treatments available for various types of cancer. However, there is a risk of damage to the heart (cardiotoxicity) depending on the cumulative dose (total amount of treatment given over time). Cardiotoxicity may lead to subclinical myocardial dysfunction (when there is evidence from a test that heart function is limited, but the person does not have symptoms), which can progress to clinical heart failure (when the person has symptoms). Dexrazoxane is a medicine with the potential to prevent or reduce this damage.

This review is the third update of a previously published Cochrane Review. The original review, looking at all possible cardioprotective agents (medicines that protect the heart), was split and this review now focuses on dexrazoxane only.

Study characteristics

The evidence is current to May 2021.

We found 13 randomised studies (clinical studies where people are randomly put into one of two or more treatment groups) looking at dexrazoxane: 5 studies in children (1252 children with leukaemia, lymphoma or a solid tumour) and 8 studies in adults (1269 adults who were mostly diagnosed with breast cancer).

Key results

Our analyses showed that:

- In adults, dexrazoxane was able to prevent or reduce heart damage for those treated with anthracyclines; In children, there was a difference between treatment groups in favour of dexrazoxane for only one of the cardiac (heart-related) outcomes; namely, clinical heart failure and subclinical myocardial dysfunction combined;
- In adults, no evidence of a negative effect on survival or a lower tumour response rate was identified; In children, no evidence of a lower overall mortality or a lower tumour response rate was identified.

The results for adverse effects varied. Children treated with dexrazoxane might have a higher risk of secondary cancers (i.e. a new cancer). This outcome was not evaluated in adults. None of the studies evaluated the quality of life of the people who participated.

Before definitive conclusions on the use of dexrazoxane can be made, especially in children, more high-quality research is needed. We conclude that if the risk of heart damage from anthracyclines is expected to be high, it might be justified to use dexrazoxane in children and adults with cancer who are treated with anthracyclines. However, clinicians and patients should weigh the cardioprotective effect of dexrazoxane against the possible risk of adverse effects, including secondary cancers, for each individual. For children, the International Late Effects of Childhood Cancer Guideline Harmonization Group has developed a clinical practice guideline (www.ighg.org).

Quality of the evidence

In children, we assessed the quality of the evidence as low for almost all evaluated outcomes and very low for two outcomes (one definition of clinical heart failure and

subclinical myocardial dysfunction combined and one definition of tumour response rate); for the other definitions of these outcomes, we assessed the results as low quality. In adults, we assessed the quality of the evidence as moderate for almost all evaluated outcomes, and as low for two definitions of survival (for the other two definitions of survival as moderate).

The quality of the evidence was limited because of issues with the study design, the small numbers of participants in some studies, or for both reasons.

Authors' conclusions

Implications for practice

Our meta-analyses showed the efficacy of dexrazoxane in preventing or reducing cardiotoxicity in adults treated with anthracyclines. In children, there was only a difference between treatment groups for one of the cardiac outcomes (in favour of dexrazoxane). In adults, no evidence of a negative effect on tumour response rate, overall survival (OS) and progression-free survival (PFS) was identified. In children, no evidence of a negative effect on tumour response rate and overall mortality was identified. The results for adverse effects varied, but there might be a higher risk of some haematological effects (adults and children) and pulmonary effects (children) and a lower risk of some gastrointestinal effects (adults and children) for those treated with dexrazoxane compared to control. Children treated with dexrazoxane might have a higher risk of secondary malignant neoplasms (SMN); in adults, this outcome was not addressed. In adults, the quality of the evidence ranged between moderate and low; in children, between low and very low.

We conclude that if the risk of cardiac damage is expected to be high, it might be justified to use dexrazoxane in children and adults with cancer treated with anthracyclines. However, clinicians and patients should weigh the cardioprotective effect of dexrazoxane against the possible risk of adverse effects, including SMN, for each individual. For children, the International Late Effects of Childhood Cancer Guideline Harmonization Group has developed a clinical practice guideline (De Baat 2022).

Citation: de Baat EC, Mulder RL, Armenian S, Feijen EAM, Grotenhuis H, Hudson MM, Mavinkurve-Groothuis AM, Kremer LCM, van Dalen EC. Dexrazoxane for preventing or reducing cardiotoxicity in adults and children with cancer receiving anthracyclines. Cochrane Database of Systematic Reviews 2022, Issue 9. Art. No.: CD014638. DOI: 10.1002/14651858.CD014638.pub2.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD014638.pub2/full/fr#CD014638-abs-0015

4. Adverse effects on the liver after treatment for childhood cancer

Review question

We reviewed the evidence for the effects of treatment for childhood cancer on the risk of adverse effects on the liver.

Background

Advances in the treatment of childhood cancer over the last decades have greatly improved the survival rates. Unfortunately, the improved prognosis has been accompanied by the occurrence of late, treatment-related complications. One of the adverse effects that can occur due to treatment of childhood cancer is damage to the liver. Liver adverse effects are common both during and soon after treatment. However, the evidence on adverse effects on the liver many years after treatment is still inconclusive. Adverse effect on the liver as a result of childhood cancer treatment is most often subclinical (asymptomatic). If liver disease becomes symptomatic, a person's complaints may include fatigue, jaundice, nausea, weight loss, and abdominal pain. The development of future treatment and follow-up policies should be based on high-quality evidence on the risk of, and associated risk factors for, adverse effects on the liver.

Study characteristics

The evidence is current to January 2018.

We found 33 cohort studies examining liver adverse effects after treatment for childhood cancer. There were 7876 cancer patients included that were treated for different types of childhood cancer, especially with chemotherapy, radiotherapy, and bone marrow transplantation. The average follow-up duration in the studies that reported this varied from two years after the end of treatment to 25 years since primary cancer diagnosis.

Key results

We found that 1% to 53% of the childhood cancer survivors developed adverse effects on the liver after cancer treatment, measured by liver enzymes in the blood. Radiotherapy to the liver increases the risk of liver late adverse effects. In addition, busulfan, thioguanine, or liver surgery may increase the risk as well. Also, survivors with chronic viral hepatitis, metabolic syndrome, higher body mass index, higher alcohol intake, statin use, non-Hispanic white ethnicity, longer time since cancer diagnosis, and older age at cancer diagnosis seemed to have an increased risk of liver adverse effects.

Quality of the evidence

All studies had problems related to the quality of the evidence.

Authors' conclusions

Implications for practice

This systematic review shows that childhood cancer survivors are at risk for hepatic late adverse effects defined as ALT above the upper limit of normal. Evaluation of serum ALT level could be helpful to screen early for hepatic late adverse effects. Abnormalities should initiate additional evaluation and measurement to prevent any further damage. Based on the results of this systematic review, it might be rational to monitor childhood cancer survivors treated with radiotherapy involving the liver, busulfan, thioguanine and/or hepatic surgery. Recommendations about the time interval of evaluation and the importance of other tests cannot be made based on currently available evidence. One should keep in mind: no evidence of effect does not mean evidence of no effect. As more data become available, clinicians will be able to make better-informed decisions regarding the treatment of future childhood cancer patients and to develop targeted follow-up programs for survivors. Since liver disease can be indolent, it might be rational that counselling should be provided regarding preventive behaviours like avoidance of alcohol, immunization against hepatitis A and B, and cautious use of alternative therapies that have a risk of liver injury.

Citation: Mulder RL, Bresters D, Van den Hof M, Koot BGP, Castellino SM, Loke YKK, Post PN, Postma A, Szőnyi LP, Levitt GA, Bardi E, Skinner R, van Dalen EC. Hepatic late adverse effects after antineoplastic treatment for childhood cancer. Cochrane Database of Systematic Reviews 2019, Issue 4. Art. No.: CD008205. DOI: 10.1002/14651858.CD008205.pub3.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD008205.pub3/full#CD008205-abs-0006

5. Severe fatigue after treatment for childhood cancer

Review question

We reviewed the literature to determine how common (prevalence) severe fatigue is in patients after treatment for childhood cancer. We also wanted to describe the course of severe fatigue after completion of cancer treatment, and to identify possible risk factors for the development of fatigue in this population.

Background

Treatments for childhood cancer are improving and becoming more effective in curing cancer. The impact of having had cancer at a young age, together with often intensive cancer therapy, can affect physical and mental well-being later in life. Most survivors will

develop one or more of these so-called late effects. Severe fatigue is a common late effect in people with adult-onset cancer and can affect a person's daily life in many ways. We do not currently know how often severe fatigue occurs after treatment for childhood cancer, nor which risk factors might be responsible for developing fatigue.

Study characteristics

The evidence is up to date to March 2019.

We include 30 studies, describing 18,682 participants after treatment for childhood cancer. We found a lot of variation between studies in cancer diagnosis, cancer treatment, age of participants, the questionnaires used to assess fatigue, and the size of the study.

Key results

Eighteen studies reported a prevalence of severe fatigue, which ranged from 0% to 61.7%. Four studies reported a prevalence of severe fatigue in the patient's brothers and sisters or in population-based controls. Prevalence rates in these control groups ranged from 3.1% to 10.3%. In these four studies, survivors were more often fatigued than controls. This difference was only significant in two studies.

When we looked at the prevalence of severe fatigue in survivors of lymphoma and leukaemia (types of blood cancers), we found that they ranged from 1.8% to 35.9%. Two studies reported on severe fatigue in brain cancer survivors, with rates of 21.13% and 14.6%. One study in bone cancer survivors reported no cases of severe fatigue. For survivors aged 18 and younger, prevalence rates ranged from 6.7% to 12.5%. By contrast, in studies including participants aged 16 years and over (but mostly over 18), prevalence rates ranged from 4.4% to 61.7%.

Twenty-two studies assessed one or more possible risk factors for fatigue. Our review shows that depression might increase fatigue. The age at cancer diagnosis and the education level of the survivor did not seem to influence fatigue.

Only one study provided information about the course of fatigue over time, and found that over the course of 2.7 years 32 of the 102 participants (31.4%) reported persistent severe fatigue.

Quality of the evidence

All included studies had problems with the quality of the evidence, and we found many differences between studies for several characteristics. The evidence to address our review question is therefore weak. The occurrence of severe fatigue after treatment for childhood

cancer remains uncertain. This is also the case for the course of severe fatigue after completion of cancer treatment and the risk factors that might be responsible for developing fatigue.

Authors' conclusions

Implications for practice

Due to a considerable variation in the included studies, this review provides limited evidence about the prevalence of severe fatigue after treatment for childhood cancer, and about risk and associated factors that might be involved in the development of fatigue. As a result, we can draw no robust or definitive conclusions for either objective of this review.

However, for professionals it is important to know that severe fatigue can be a late effect of treatment after childhood cancer, and screening for fatigue in follow-up clinics might be valuable to gain more insight into fatigue within this population.

Citation: van Deuren S, Boonstra A, van Dulmen-den Broeder E, Blijlevens N, Knoop H, Loonen J. Severe fatigue after treatment for childhood cancer. Cochrane Database of Systematic Reviews 2020, Issue 3. Art. No.: CD012681. DOI: 10.1002/14651858.CD012681.pub2.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD012681.pub2/full/fr#CD012681-abs-0004 .

Conclusion

World Paediatric Cancer Day, celebrated every year on 15 February, is a crucial opportunity to raise awareness of the issues facing children affected by cancer worldwide. In 2025, this day will place particular emphasis on the need to step up global efforts to ensure access to quality care for children, especially in developing countries such as Cameroon. It represents a call to action for prevention, early detection and improved treatment, while highlighting the importance of research and psychosocial support for children and their families. Cooperation between governments, NGOs, health associations, parents and communities is essential.

It is essential to put in place a system to overcome these obstacles, between late diagnosis resulting from advanced stages of the disease and socio-cultural factors.

Others sources:

Albert Le Grand Fosso, Ilario Rossi and Cathy Olivia Atieufack Dongmo, "*Care arrangements with multiple rationales in a pediatric hemato-oncology service in Cameroon", Anthropologie & Santé* [Online], 26 | 2023, put online on 17 May 2023 URL: http://journals.openedition.org/anthropologiesante/12654; DOI: https://doi.org/10.4000/anthropologiesante.12654

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