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Oral mucositis is the most prevalent complication in children with acute lymphoblastic leukemia, a consequence of cytotoxic chemotherapy⁽¹⁾ and transplantation of hematopoietic stem cells in adults and children.⁽²⁾ This condition presents an estimated incidence of 40% after conventional chemotherapy and 70% after high-dose chemotherapy.⁽³⁾ The oral mucosa is highly susceptible to the effects of chemotherapy and radiotherapy due to the high mitotic activity, which is the major source of sepsis in pediatric patients with leukemia. Early intervention, including the adoption of oral hygiene measures, reduces the risk of associated oral and systemic complications.⁽⁴⁾

To evaluate the methods of prevention, the diagnosis and treatment of oral mucositis lesions in children with acute lymphoblastic leukemia.

Bibliographic research carried out in the *PubMed* database, with the following keywords: *oral mucositis; Prevention; Pediatric patients; Tooth brushing techniques; Oral health and chlorhexidine*, isolated and in combination articulated with the boolean marker "AND".

Inclusion Criteria:

- **Language:** English and French;
- **Time limit:** 2000 to 2006;
- **Scientific article type:** *Case Reports; Clinical Study; Clinical Trial; Clinical Trial Phase I; Clinical Trial Phase II; Clinical Trial Phase III; Guideline; Meta-Analysis; Randomized Controlled Trial; Review and Systematic Review;*
- Articles with reference to the prevention of oral mucositis in the pediatric oncological population.

Exclusion Criteria:

- **Language:** Other language not mentioned in the inclusion criteria;
- Articles with reference to the prevention of oral mucositis in the adult population.

After the bibliographic research with the mentioned characteristics, a total of 29 articles were analyzed, as shown in Table 1.

Table.1. Bibliographic research

			Results	Title	Abstract	Article
Oral Mucositis	Prevention	Pediatric Patients	24	13	8	6
		Tooth Brush Techniques	11	2	1	1
		Oral Health	152	37	16	6
		Chlorhexidine	37	13	7	7
		Chemotherapy	554	65	20	15
	Pediatric Patients	Tooth Brushing Techniques	2	1	0	0
		Oral Health	16	6	4	3
		Chlorhexidine	4	4	3	2
		Chemotherapy	107	19	13	8
		Tooth Brushing Techniques	7	1	0	0
	Oral Health	Chlorhexidine	3	0	0	0
		Chemotherapy	7	2	1	1
Chlorhexidine		35	13	5	4	
Chemotherapy		316	18	9	4	
Chlorhexidine		58	12	8	7	
Prevention	Pediatric Patients	Tooth Brushing Techniques	10	0	0	0
		Oral Health	141	7	4	5
		Chlorhexidine	26	2	1	1
		Chemotherapy	2242	-	-	-
		Oral Health	540	-	-	-
	Tooth Brushing Techniques	Chlorhexidine	107	1	1	1
		Chemotherapy	65	2	1	1
		Oral Health	237	-	-	-
		Chemotherapy	2920	-	-	-
		Chlorhexidine	361	11	6	6
Pediatric Patients	Tooth Brushing Techniques	Oral Health	9	0	0	0
		Chlorhexidine	3	0	0	0
		Chemotherapy	4	1	1	0
Tooth Brushing Techniques	Oral Health	Chlorhexidine	48	0	0	0
		Chemotherapy	41	1	0	0
		Chlorhexidine	24	2	2	1
Oral Care Protocol	Oral Mucositis	Pediatric Patients	5	4	3	3
		Total	8116	257	116	29

Diagnosis

- ✓ **First signs and symptoms:** erythema, edema, burning sensation and increased sensitivity to hot / spicy foods.⁽⁵⁾
- ✓ **Conditioning for transplantation (High Dose Chemotherapy):**
 - **Beginning:** 7 to 10 days after the start of conditioning;
 - **Symptoms:** up to approximately 2 weeks after the end of conditioning.⁽⁶⁾
- ✓ **Clinically:** erythematous, erosive and ulcerative lesions:⁽⁵⁾
 - **Ulcerative lesions** are the most symptomatic;^(6,7)
 - **Erythematous areas:** they may progress to elevated white scaly spots and then to painful ulcers.^(7,8)
- ✓ **Chemo-induced oral mucositis:** observed on the movable mucosa, it rarely affects the back of the tongue, palate or gums.⁽⁵⁾
- ✓ **Oral mucositis by radiotherapy:** observed in the mobile mucosa and adhered.⁽⁵⁾

Table 2. Determination of the degree of oral mucositis based on the clinical manifestations^(5,6)

Grade 0	Normal aspect of oral mucosa
Grade 1	Erythema with painful sensation
Grade 2	Non-confluent pseudomembranous plaques less than 1,5cm, erythema, ulceration and pain Tolerant solid foods
Grade 3	Confluent pseudomembranous plaques with more than 1,5cm, ulcers and severe pain Only liquid feed is possible
Grade 4	Ulceration and necrosis with intolerable pain. Oral feeding impossible impossible, only parenteral nutrition, speech impairment

Prevention

- ✓ Teach children and parents / educators oral hygiene techniques, and explain the symptomatology of these lesions;
- ✓ Cryotherapy (application of ice cubes or mouthwashes with ice water during chemotherapy);
- ✓ Palifermin (keratocyte growth factor): reduces the incidence and duration of severe oral mucositis in patients undergoing high-dose chemotherapy with or without radiotherapy, followed by transplantation of hematopoietic cells.⁽⁶⁾

Treatment

- ✓ To maintain a good oral hygiene, using appropriate techniques and materials, such as soft consistency brushes;
- ✓ Analgesics;
- ✓ Non-medicated mouthwashes (e.g., 0.9% saline or 4 to 6 times / day sodium bicarbonate);
- ✓ Parenteral nutrition, if necessary;
- ✓ Mucosal coating agents (e.g., Amphojel®).⁽⁶⁾

The success for the maintenance of a healthy oral cavity during oncologic therapy lies in the execution of an early diagnosis and the application of adequate preventive/therapeutic measures in each phase of mucositis / cancer treatment.

In monitoring the cancer patient, it is fundamental the intervention of a multidisciplinary team aiming to minimize the impact of cancer treatment on oral and general health, and the quality of life of the child.

1. Soares, A. F. *et al.* (2011). Frequency of Oral Mucositis and Microbiological Analysis in Children with 0,12% Chlorhexidine Gluconate. *Brazilian Dental Journal*, 22(4), pp. 312-316.
2. Sung, L. *et al.* (2014). Guideline for the prevention of oral and oropharyngeal mucositis in children receiving treatment for cancer or undergoing haematopoietic stem cell transplantation. *BMJ Supportive & Palliative Care*, 7(1), pp. 7-16.
3. Lucchese, A. *et al.* (2015). Efficacy and effects of palifermin for the treatment of Oral Mucositis in pediatric patients affected by Acute Lymphoblastic Leukemia. *Leukemia & Lymphoma*, 57(4), pp. 820-827.
4. Padhani, C. *et al.* (2014). Oral and Dental Considerations in Pediatric Leukemic Patient. *Hindawi Publishing Corporation*, 2014.
5. Cheng, K. K. F., *et al.* (2001). Evaluation of an oral care protocol intervention in the prevention of chemotherapy-induced oral mucositis in paediatric cancer patients. *European Journal of Cancer*, 37(2001), pp. 2056-2063.
6. American Academy of Pediatrics Dentistry (2016). Guideline on Dental Management of Pediatric Receiving Chemotherapy, Hematopoietic Cell Transplantation, and/or Radiation Therapy. *Pediatr Dent*, 38(6), pp. 334-342
7. El Bousaidani, A. *et al.* (2016). Actualités de la prévention et du traitement des mucosites orales chez les enfants cancéreux: recommandations pratiques. *Cancer Radiotherapy*, 20(3), pp. 226-230
8. El-Housseiny, A. A., *et al.* (2007). The effectiveness of vitamin "E" in the treatment of oral mucositis in children receiving chemotherapy. *The Journal of Pediatric Dentistry*, 31, pp.167-172.
9. Cheng, K. K. F., Chang, A. M., (2003). Palliation of Oral Mucositis Symptoms in Pediatric Patients Treated With Cancer Chemotherapy. *Cancer Nursing* 26(6).