PROCEDURAL PAIN PREMEDICATION IN PEDIATRIC ONCO-HEMATOLOGY: FRENCH RECOMMENDATIONS (SFCE) FOR LUMBAR PUNCTURES, BONE MARROW ASPIRATIONS, AND BIOPSIES.

S. Bouttefroy, S. Klein, B. Blanc, J. Bonneau, C. Cordero, C. Dollfus, AL. Genevois, L. Guerrini-Rousseau, P. Marec-Bérard, L. Metayer, A. Phulpin, M. Poirée, A. Romeas, O. Sakiroglu, V. Veyet, N. Schinkel, S. Thouvenin
Pain committee of the SFCE, France

Introduction

- Many medical procedures for the diagnosis and treatment of pediatric cancers are performed at the patient's bedside
- Pain memorization can increase pain perception over time
- Anticipating procedural pain helps prevent uncontrolled pain during these procedures and chronic pain
- There is limited data in literature about premedication at the patient's bedside
- No consensual practices exist in French oncological and hematological pediatric units
- Specific recommendations for patients < 6 months old are currently being developed

Methods

An exhaustive literature review was performed in PubMed, including articles published from 1998 to 2023.
Additionally, 2 experience-sharing sessions were organized with supportive care pediatricians from most French oncological and hematological pediatric units to compare local protocols and standardize clinical practices. Based on the literature data and insights from these sessions, the Pain Committee of the Société Française des Cancers de l'Enfant (SFCE) proposed recommendations to homogenize procedural pain management for patients > 6 months old.

Results

Most articles in the literature review focused on deep sedation and analgesia[1]. One article described practices in Italian centers where 60% of medical procedures were performed in an operating room, and over 80% of the doctors involved in sedation and analgesia were anesthesiologists[2].To our knowledge, no guidelines are available for procedural pain premedication at the patient's bedside.

For the first lumbar puncture and every bone marrow (BM) aspiration, premedication should combine a topical analgesic (transcutaneous lidocaine and prilocaine), a systemic analgesic (morphine or similar drug) and an anxiolytic (preferably oral midazolam), along with an Equimolar Mixture of Oxygen and Nitrous Oxide and non-pharmacological interventions (See Table 1). Local infiltration of buffered lidocaine can be proposed for BM aspirations.
For subsequent lumbar punctures, if the first procedure was well-tolerated, it is recommended to decrease premedication by removing either the analgesic or the anxiolytic drug, depending on the patient's profile. However, no reduction in premedication is proposed for BM aspirations. See Table 2 for recommended dosages.
Non pharmacological interventions should be employed during all medical procedures (hypnosis, distraction, sophrology…).
For BM biopsy, deep sedation in an operating room is recommended. If this is not feasible, ketamine can be used at the patient's bedside, with a trained medical team.

Medical procedure	Lumbar puncture	Bone marrow aspiration
Transcutaneous lidocaine-prilocaine 1.5-2 hours before	Systematic	Systematic
Equimolar mixture of Oxygen and Nitrous Oxide (if tolerated)	Systematic	Systematic
Systemic analgesic : choose from : • Intravenous (IV) Nalbuphine • Morphine (oral or IV administration)	Systematic for the first one, then decrease possible	Systematic
Anxiolytic : choose from : • Oral midazolam (preferably) • Oral hydroxyzine	Systematic for the first one, then decrease possible	Systematic
In case of failure : • IV ketamine • IV chlorpromazine	If needed	If needed
Non pharmacological interventions	Systematic	Systematic
Bluffered lidocaine infiltration	No	If needed

Table 1: Paramedication protocol for procedural pain management.

Drug	Oral dosage	Intravenous dosage
Nalbuphine	Not available	0.2mg/kg (maximum 10mg)
Morphine	0.2mg/kg (maximum 20mg)	0.1mg/kg (maximum 6mg)
Midazolam	0.25mg/kg (maximum 20mg)	Not recommended
Hydroxyzine	2mg/kg (maximum 100mg)	Not recommended
Chlorpromazine	Not recommended	0.5mg/kg, patient under fasting condition

Table 2: Recommended dosages for procedural pain premedication.

Conclusions

This work aimed to propose an homogenized approach to procedural pain premedication for the whole group of French oncological and haematological pediatric units. The goal is to help prevent pain memorization and improve the management of procedural pain, ensuring better outcomes for pediatric patients.

References

[1] Loeffen EAH, Mulder RL, Font-Gonzalez A, Leroy PLJM, Dick BD, Taddio A, Ljungman G, Jibb LA, Tutelman PR, Liossi C, Twycross A, Positano K, Knops RR, Wijnen M, van de Wetering MD, Kremer LCM, Dupuis LL, Campbell F, Tissing WJE. Reducing pain and distress related to needle procedures in children with cancer: A clinical practice guideline. Eur J Cancer. 2020 May;131:53-67. doi: 10.1016/j.ejca.2020.02.039. Epub 2020 Apr 14. PMID: 32302949.
[2] Po' C, Benini F, Sainati L, Farina MI, Cesaro S, Agosto C. The management of procedural pain at the Italian Centers of Pediatric Hematology-Oncology: state-of-the-art and future directions. Support Care Cancer. 2012 Oct;20(10):2407-14. doi: 10.1007/s00520-011-1347-x. Epub 2011 Dec 31. PMID: 22210474.