Combined oral administration of analgesia and anxyiolysis for pain associated with bone marrow aspiration and biopsy

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Introduction

As there are no forBone marrow aspiration and biopsy (BMAB) is a painful procedure, and the commonly adopted local infiltration anesthesia (LIA) with lidocaine is unable to relieve the pain during the most uncomfortable phases, or the anticipatory anxiety related to pain recalling thereafter. mal guidelines for adding a sedoanalgesic premedication before beginning the BMAB, many combinations have been adopted by several authors.

Aims

Our randomized and patient blinded trial aimed to evaluate, as primary end point, the efficacy and safety of opioid and benzodiazepine agent combination plus LIA in patients who underwent BMAB for hematological malignancies. Two secondary end points were: 1) define if patients who already underwent to BMAB without LIA prefer sedoanalgesia; 2) sedoanalgesia can influence the quality of the biological specimen harvested.

Methods

Patients were randomly assigned into two arms for receiving either sedoanalgesic placebo plus LIA (standard group, 48,6%) or oral fentanyl citrate 200 mcg plus oral midazolam 5 mg in addition to LIA (combo-group, 51,4%) during BMAB. Pre-procedural anxiety and procedural pain were assessed according to the Numered Rating Scale (NRS: 0-10), dividing the time of the procedure into five intervals (T0, T1, T2a, T2b, and T3) and evaluating discomfort grade during each moment of procedure in both groups. Cognitive function was measured before and 30 minutes after the procedure. Possible side effects were recorded, as well as the adequacy of tissue samples harvested. A telephone interview was performed 24 hours later. A total number of one-hundred-sixteen (n =116) were enrolled in the study. Nine (n = 9) patients did not meet inclusion criteria and were excluded. Fifty-two (n = 52) patients were randomized and assigned to standard group and fifty-five (n = 55) to combo group.

Results

At T2b and T3 (corresponding to the biopsy time and time after the biopsy, respectively) there was a significantly lower ($p < 0.05$) perception of pain in the patients who received sedo-analgesia (combo-group) compared to those who did not (standard group). Moreover, 100 % of the patients in combo group who had previously undergone this procedure without premedication, reported that they would prefer sedoanalgesia for the subsequent procedures, thus showing the effectiveness of this combination also in relieving anticipatory anxiety. Finally, the histological specimen was found to be high in quality, as defined by standards.

Characteristic	Standard group	Combo group
Number of patients	52	55
Sex		
Male/Female	25/27	26/29
Age, years		
Median (range)	61 (19-84)	60 (21-82)
Type of hematologic neoplasm		
Non Hodgkin lymphomas	8	12
Acute Myeloid Leukemia	9	8
Myelodisplastic syndromes	8	7
Multiple Myeloma	8	4
Essential thrombocythemia	5	7
Polycythemia vera	4	6
Hodgkin lymphoma	4	3
Primary myelofibrosis	3	2
Acute lymphoblastic leukemia	4	1
Chronic myeloid leukemia	1	3

Table 2. Baseline characteristics of patients.

Author, y	Drug	Pain scale	Timing	n Pz	Results
Milligan, 1987	Lorazepam (4 mg os) vs placebo	VAS	a) End b) 24 h	50	a) ns b) 60% □
Vanhelleputte, 2003	Tramadol (50 mg) vs placebo	VAS (0-55 mm)	a) LA b) Aspiration c) 10 min	100	a) + b) 20% vs 40% c) ns
Steedman, 2006	N ₂ O + LA vs LA	NRS (0-3)	End	136	14% vs 33% 3
Gudjin, 2008	N ₂ O vs midazolam i.v	NRS (0-10)	End	22	94% +/- midazolam
Talamo, 2009	LA vs LA+lorazepam acetaminofeneossic odone	WBFPRS (0-5)	End	84	64% vs 78% 0-2