Incidence of Acute and Chronic Post-Thoracotomy Pain in Children

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ABSTRACT

This retrospective cross-sectional study involved patients, at Ospedale Bambino Gesù Children's Hospital in Rome, Italy, who underwent thoracotomy between 2007 and 2013 for benign diseases, with a follow-up of at least three months and who did not reach the age of majority in November 2013. To the families a letter to explain the study, the request for collaboration, a questionnaire for data collection and an informed consent were sent. Fifteen days after, the telephone interview began and we asked them to countersign and send us informed consent via email, fax or post. During the interview we asked about the presence, kind, intensity and location of the pain only at the time of the interview and any analgesic therapy in progress. Using the medical records referring to the period of hospitalization for surgery, we investigated the anesthetic technique used, the postoperative analgesic therapy prescribed, any changes made to it and changes in pain during the first week of the postoperative period. In case of unsuccessful telephone contact, a second letter has been sent. Patients who reached the age of majority in November 2013, patients with malignant and inflammatory diseases, patients who did not have a follow-up of at least three months and patients of whom it was not possible to have an answer after the second letter of presentation were excluded from the study. The subjects removed from the study in case of non-response to the second letter have not been replaced.

The prevalence of acute postoperative pain and the prevalence of chronic pain at the time of interview have been described. The adequacy of pain treatment was assessed with the Pain Management Index (PMI) and modified for the use on children. The predictive factors of chronic pain have been explored

Categorical variables were summarized using absolute frequencies and percentages, and continuous variables by the mean or median and interquartile range, as appropriate. To determine statistical differences between groups, we used the Chi-square test or Fischer's exact test for categorical variables and the t-test or Mann–Whitney test for continuous variables. We used Z-test to compare the frequency of postoperative pain.

Statistical analyses were carried out using the Stata program, version 13 (2013, Stata statistical

software: StataCorp, College Station, TX).

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The authors has no conflict of interest

1 The study has been approved by the ethics committee of the Bambino Gesù Children's Hospital IRCCS on 06/11/2013 with number 957/RA

2 The study involved patients who underwent thoracotomy between 2007 and 2013 for benign diseases, with a follow-up of at least three months and who did not reach the age of majority in November 2013

3 A letter was sent to all families to explain the purpose and the method of the study and the request for collaboration. To prepare parents for the telephone interview, together with the letter a questionnaire for data collection and an informed consent were also sent.

4 Fifteen days after (the letters were sent), the telephone interview began and, after establishing a positive contact, we asked them to countersign and send us informed consent via email, fax or post.

5 During the interview we asked about the presence, kind, intensity and location of the pain only at the time of the interview and any analgesic therapy in progress.

6 Using the medical records referring to the period of hospitalization for surgery, we investigated the anesthetic technique used, the postoperative analgesic therapy prescribed, any changes made to it and changes in pain during the first week of the postoperative period.

7 In case of unsuccessful telephone contact, a second letter has been sent asking parents to send us questionnaires and informed consent by mail, fax or post.

8 Patients who reached the age of majority in November 2013, patients with malignant and inflammatory diseases, patients who did not have a follow-up of at least three months and patients of whom it was not possible to have an answer after the second letter of presentation were excluded from the study.

9 The subjects removed from the study in case of non-response to the second letter have not been replaced.

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10 The prevalence of acute postoperative pain and the prevalence of chronic pain at the time of interview have been described.

11 The adequacy of pain treatment was assessed with the Pain Management Index (PMI), as suggested by Strohbuecker et al (19) and modified for the use on children. It compares the analgesic score (no analgesic = 0 points; WHO I = 1 point; WHO II = 2 points; WHO III = 3 points) with Pain score using NRS and FLACC scale (NRS and FLACC scale = 0: no pain and 0 point; NRS and FLACC scale 1-3: mild pain and 1 point; NRS and FLACC scale 4-6, moderate pain and 2 points; NRS and FLACC scale 7-10: severe pain and 3 points). PMI was computed by subtracting pain score from analgesic score. It ranges from -3 (patient with severe pain receiving nop drug) to + 3 (patient receiving strong opioids and reporting no pain); negative scores indicate undertreatment.

12 Predictive factors of chronic pain have been explored including thoracotomy, anesthesia and analgesia used, the sex and age at the time of surgery.

13 Statistical Analysis: Categorical variables were summarized using absolute frequencies and percentages, and continuous variables by the mean or median and interquartile range, as appropriate. To determine statistical differences between groups, we used the Chi-square test or Fischer's exact test for categorical variables and the t-test or Mann–Whitney test for continuous variables. We used Z-test to compare the frequency of postoperative pain. Statistical analyses were carried out using the Stata program, version 13 (2013, Stata statistical software: StataCorp, College Station, TX).

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