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**PROCEDURE RELATED PAIN WITH FOCUS ON BONE
MARROW ASPIRATION IN ADULT PATIENTS WITH
MALIGNANCIES**

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Karolinska Institutet offentligen försvaras i Nanna Svartz Auditorium A7:00, Karolinska Universitetssjukhuset, Solna

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ABSTRACT

Pain is the most feared consequence of malignancy and an important clinical problem. Patients frequently undergo a variety of invasive diagnostic and therapeutic procedures which may cause pain and anxiety of varying intensity. This is a hitherto relatively unexplored area in adult patients. As an example, bone marrow aspiration/biopsy (BMA) in patients with haematological malignancies is a fundamentally important procedure for establishing the diagnosis, staging and therapeutic monitoring of the disease (1). When BMA is performed, LIA with lidocaine is commonly used to numb skin and periosteum at the puncture site (2).

The specific aims of the work presented in this thesis were to; increase knowledge of the occurrence of pain associated with different procedures (Study I); to evaluate procedure-related pain in patients undergoing BMA and to identify factors related to patients' perception of pain (Study II), to compare the level of agreement between health-care professionals' and patients' ratings of patients' pain and anxiety during BMA (Study III); to compare the analgesic effect of two different methods of LIA in conjunction with BMA (Study IV). Studies I-III were descriptive and data were collected using questionnaires on patient characteristics and evaluation of perceived pain and anxiety level. Study IV was a randomized double-blind controlled study.

Study I revealed that 310 admitted oncological or haematological patients had undergone six (median) procedures during one week, of which 49 % were perceived as painful. Of these, 28% were reported more painful than expected. BMA was scored as one of the third most painful procedures. In Study II, with 235 haematological patients undergoing BMA, 70% perceived pain, severe in 30% of these. Pre-existing pain, anxiety about diagnostic outcome, needle insertion and low employment status were independent factors increasing the risk of experiencing pain during BMA (OR 2.6; 3.17; 2.49; 3.14, respectively). Twenty-five health care professionals (16 MD, 9 RN) did their own "external" estimate of patients' levels of pain and anxiety (Study III). Calculation of agreement (proportion of agreement, Cohen's unweighted kappa coefficient, intra-class correlation) between health care professionals' and patients' ratings showed fair agreement for occurrence, and moderate for intensity, of pain. Professionals underestimated severe pain and overestimated mild pain. Agreement on anxiety was poor. Study IV with 50 haematological patients undergoing BMA, compared two methods of LIA in order to find a more effective anaesthetic method for these patients. However, we found no difference in the efficacy of the two methods.

In conclusion, inpatient hospital care for patients with malignancy includes several painful procedures that were found more painful than expected by 28% of patients. Haematological patients undergoing BMA usually perceive significant pain that can last up to one week and can be predicted by co-existing factors. Healthcare professionals underestimate patients' pain and anxiety during BMA. The quality of the two infiltration anaesthesia methods that were compared for BMA was similarly poor.

Keywords: bone marrow aspiration, pain, procedure-related pain, anxiety, malignancy, agreement, health care professionals, local infiltration anaesthesia, satisfaction, expectation

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