

# The problem of pain evaluation in the process of nursing care in thoracosurgical patients and in general surgery

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## Abstract

Postoperative pain causes numerous disorders in systemic homeostasis. It may result in various complications prolonging the period of convalescence and making the rehabilitation difficult, or even being dangerous to life. A nurse becomes irreplaceable in the process of pain evaluation just after surgical procedures since the pain intensity constitutes the basis for later treatment decisions. The aim of the research is the evaluation of postoperative pain in patients after thoracic and abdominal surgical procedures. 50 thoracosurgical patients and 50 general surgical patients were involved in the research. Patients were selected at random. A visual-analogue scale was used for pain evaluation and the categorisation table was used for the evaluation of patients' self-care ability. Statistical analysis was performed by means of STATISTICA 6 package (StatSoft, Inc). The results prove that in thoracosurgical patients pain intensity is lower and there is no dependence on the operation performed, as in the case of patients after surgical procedures within the abdominal cavity. Statistically significant differences were observed between groups of patients and the analgesic drugs used as well as pain intensity. The evaluation of patients' self-care ability does not depend on the intensity of pain declared by patients.

**Key words:** pain, self-care, categorisation.

## Introduction

Nowadays, postoperative pain treatment is a routine procedure. Unfortunately, such a routine leads to situations when doctors are no longer interested in treatment efficiency. Thus, postoperative pain constitutes a constant medical problem area and still is very often improperly treated. It is located in a hollow between the peaks of operation and complications. This space is often unnoticed by surgeons, yet this is the time when the postoperative complications appear and develop. The most common complications are: circulatory or respiratory disorders, difficulties in the passage of chyme, disorders with a decrease in immunity [1-3]. Postoperative pain causes numerous disorders in systemic homeostasis. It may result in various complications prolonging the period of convalescence and making the rehabilitation difficult, or even being dangerous to life. Pain caused complications may be dangerous for a patient particularly after thoracosurgical operations. Shallow breathing leads to ventilation impairment, the development of atelectasis, it also increases the risk of pneumonia. It is worth remembering that systemic reaction to pain expresses in an increase of thrombocytes adherence and fibrinolysis drop, which in the case of slower venous blood flow (in patients afraid of moving because of pain) promotes thromboembolic complications [4,5]. Long lasting pain takes complete control of a patient's mind, leading to depression, anxiety and physical exhaustion resulting for instance from the lack of sleep [6]. Pain evaluation is extremely important with regard to a precise pain characteristic and the assessment of the extent to which pain influences patients' physical condition and the degree to which it constitutes the element of suffering [7,8]. A nurse becomes irreplaceable in the process of pain evaluation just after surgical procedures. Both the character and the intensity of pain should be evaluated by a nurse at first because of her constant presence and proper communication with a patient. Pain intensity constitutes the basis for later treatment decisions. It indicates how quick the reaction should be, which drug should be instituted and it also determines the way of drug administration.

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Table 1. Patients' age vs the analysed group

Age	Thoracosurgical patients		General surgical patients		Total	
	N	%	N	%	N	%
<50 years old	18	36	25	50	43	43
51-70 years old	25	50	15	30	40	40
>71 years old	7	14	10	20	17	17
Total	50	100	50	100	100	100

U Mann-Whitney test  $p=0.479$

A nurse, while administering analgesics has to observe a patient, realise his/her needs or identify any abnormal behaviour. Strict following a schedule of analgesic drugs administration by nurses and doctors' quick reactions to nurses' and patients' suggestions are the necessary conditions of a successful treatment. In the process of nursing care, to evaluate the postoperative pain, the Visual Analogue Scale (VAS) may be used effectively. Using this scale, as well as the questionnaire of a life quality evaluation – ESAS (The Edmonton Symptom Assessment System) has an additional, psychological meaning. Giving pain the value of a number makes it 'visible' for doctors and nurses and improves the communication in the patient – nurse – doctor relationship. Suggestions concerning pain intensity should be taken into consideration by nurses while the evaluation of patient's self-care abilities [9,10,11]. The aim of the research is to evaluate postoperative pain in patients after thoracic and abdominal surgical procedures and to analyse the following research problems: 1) is there a relationship between pain evaluation and the analysed group of patients, 2) is there a relationship between type of an operation, 3) is there a relationship between a schedule of analgesic drugs administration, and 4) does the pain intensity declared by patients' influence nurses' evaluation of patient's self-care abilities.

## Material and methods

The research involved 100 patients, 50 of them were operated on in The Clinic of Thoracic Surgery of The Medical University of Gdańsk and the other 50 were operated on in the Thoracic Surgery Ward of a hospital in Łódź, the head of a hospital department: X. Patients were selected at random. Among the thoracosurgical patients there were 37 (74%) men and 13 (26%) women; among general surgical patients there were 18 (36%) men and 32 (64%) women. The complete group comprised 55 (55%) men and 45 (45%) women – (Chi-square =14.52;  $p<0.001$ ). The patients' age was analysed according to age groups: up to 50 years old, between 51 and 70 years old, above 71 years old. The situation is presented in *Tab. 1*.

A visual-analogue scale was used for pain evaluation and the categorisation table was used for the evaluation of patients' self-care ability. Pain was measured twice a day, at the stated times (10.00 a.m., 6.00 p.m.) during the first three days after a surgical procedure. At the same times nurses measured patients' self-care abilities by means of the IV-degree categorisation table. Statistical analysis was performed by means of STATISTICA

6 package (StatSoft, Inc). Statistical description was produced with the use of the mean, statistical deviation and frequency. Statistical conclusion depending on the scale and distribution type was made by means of t-Student, ANOVA, Scheffe post-hoc test,  $\chi^2$  and r-Spearman nonparametric correlation.

## Results

Among the thoracosurgical patients in 9 cases (18%) there was a lung excision, in 23 cases (46%) a lung lobe excision and in 2 cases (4%) patients were operated on because of pneumothorax. Among the general surgical patients in 40 cases (80%) there was a cholecystectomy, in 4 cases (8%) an exploratory laparotomy was performed, in 2 cases (4%) there was an intestine resection, and in 4 cases (8%) there was a stomach resection performed. *Fig. 1* presents the mean values of pain in the analysed groups. T-Student test revealed differences in subsequent measurements: measurement 1 –  $p=0.81$ , measurement 2 –  $p=0.20$ , measurement 3 –  $p=0.96$ , measurement 4 –  $p=0.73$ , measurement 5 –  $p=0.18$ , measurement 6 –  $p=0.91$ . Two-factor analysis of variance (ANOVA), with a group of patients (after thoracic surgical procedures; after abdominal surgical procedures) and measuring time (measurements 1-6) functioning as the independent variable and VAS measurements' results functioning as the dependent variable – revealed the difference  $p<0.001$ . The mean pain value in the analysed groups did not depend on age, sex or the kind of surgical procedure. The scheme of an analgesic treatment in thoracosurgical patients is presented in *Fig. 2*. The scheme of an analgesic treatment in general surgical patients is presented in *Fig. 3*. Among the thoracosurgical patients the most commonly used drugs combination was Dolargan scheduled with Ketonal or Dolargan scheduled with Pyralgin. In general surgery such analgesics as Pyralgin, Tramal and Ketonal dominate. Mann-Whitney U test revealed differences between the instituted analgesic treatment and the analysed groups in all 6 measurements at the level of  $p<0.001$ . After the 1st and 2nd measurements of the thoracosurgical patients all of them were evaluated as completely incapable of self-care and were classified to category IV, in the 3rd measurement 90% of the patients were classified to category III and the remaining 10% were still in category IV. After the 4th measurement 99% of the patients were in category III, and in the 5th and 6th measurements all of the patients were classified to category III. Among the general surgical patients, similarly to these in thoracosurgery, in the 1st and 2nd measurements all the patients were classified to category IV. After the 3rd measurement 50% of the patients were in category III and 50% in category IV. In the next measurement 89% of the patients were in category III and 11% in category IV. Next measurements resulted in 99% of the patients classified into care category III. Mann-Whitney U test revealed differences between the evaluation of categorisation and the analysed group in the 3rd measurement: measurement 1 –  $p=1.00$ , measurement 2 –  $p=1.00$ , measurement 3 –  $p=0.009$ , measurement 4 –  $p=0.730$ , measurement 5 –  $p=1.00$ , measurement 6 –  $p=1.00$ . No statistically significant differences between the evaluation of the patients' self-care abilities and pain were observed in the analysed group.

Figure 1. The mean value of pain in the analysed groups

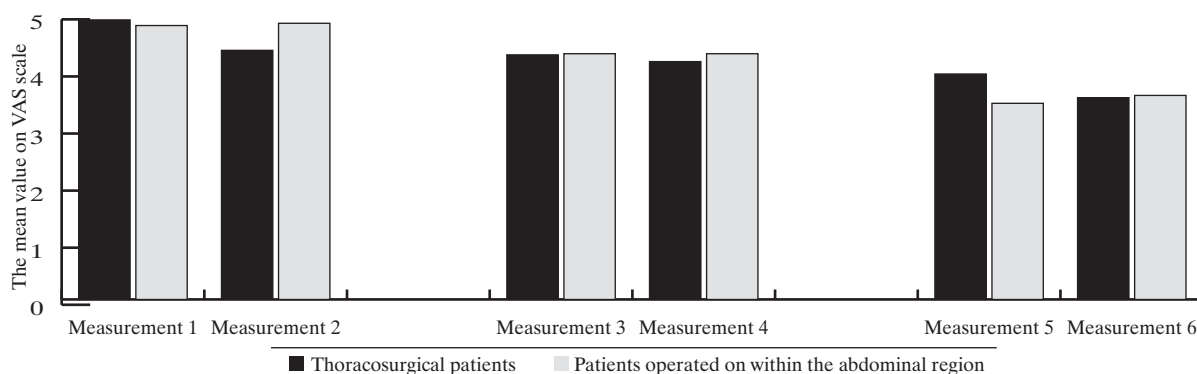
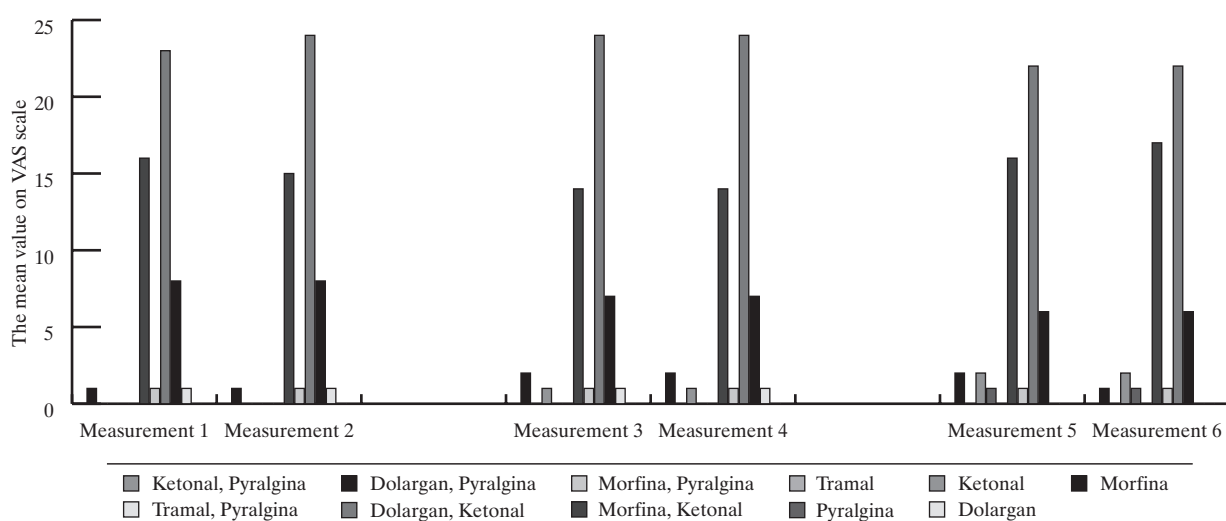


Figure 2. Drugs used in the thoracological ward



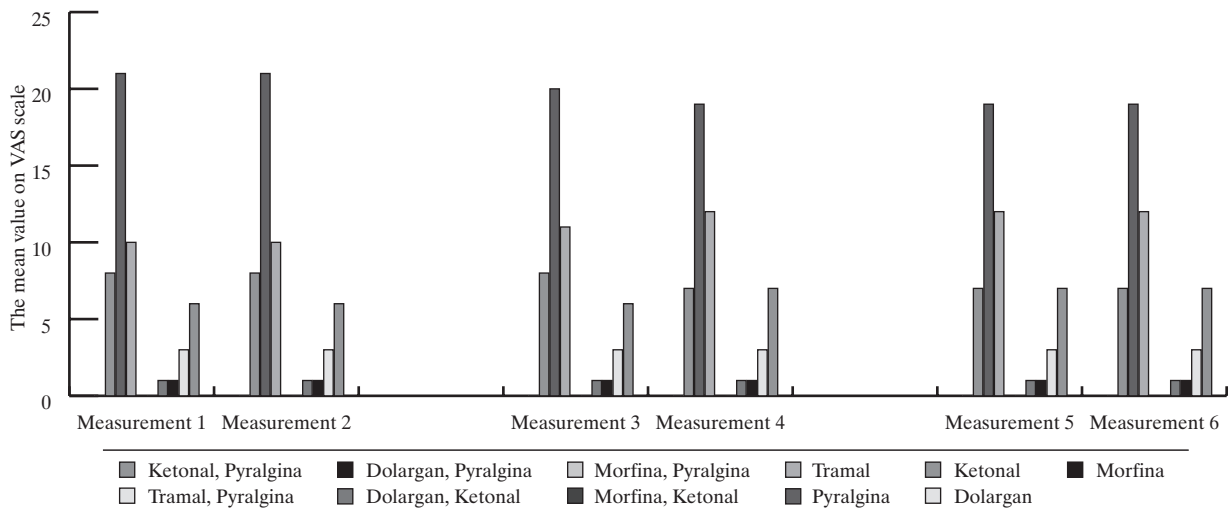
	Measurement 1	Measurement 2	Measurement 3	Measurement 4	Measurement 5	Measurement 6
Morfina	1	1	2	2	2	1
Dolargan	0	0	0	0	0	0
Ketonal	0	0	1	1	2	2
Pyralgina	0	0	0	0	1	1
Tramal	0	0	0	0	0	0
Morfina, Ketonal	16	15	14	14	16	17
Morfina, Pyralgina	1	1	1	1	1	1
Dolargan, Ketonal	23	24	24	24	22	22
Dolargan, Pyralgina	8	8	7	7	6	6
Tramal, Pyralgina	1	1	1	1	0	0

## Discussion

There exists a commonly accepted opinion that pain evaluation by patients is the only useful criterion of treatment assessment [1,7,9]. For both practical and scientific purposes it is necessary in everyday nursing practice to use the methods which allow to compare the intensity of pain in various moments of postoperative care. In spite of the fact that in recent years a growing interest in the problem of postoperative pain relief can easily be noticed [3-5], nurses, in the process of nursing care do not use available methods as a routine [10]. To achieve

this a systematic pain measurement is necessary, such as in the case of routine measuring of pulse, arterial blood pressure or temperature. What is needed for an effective control of postoperative pain, apart from a skilful administering of drugs adjusted to a character and intensity of pain, is a tender nursing care of patients [6,8,11]. The analysis carried out in the above research concerning two distant medical centres and different groups of patients show that the problem of pain evaluation in the process of nursing care and treatment still exists. An intentional choice of groups of different operative treatment and postoperative care specificity made it possible for certain tendencies in the routine approach to the analysed issue to

Figure 3. Drugs used in the general surgical ward



	Measurement 1	Measurement 2	Measurement 3	Measurement 4	Measurement 5	Measurement 6
Morfina	0	0	0	0	0	0
Dolargan	0	0	0	0	0	0
Ketonal	8	8	8	7	7	7
Pyralgina	21	21	20	19	19	19
Tramal	10	10	11	12	12	12
Morfina, Ketonal	0	0	0	0	0	0
Morfina, Pyralgina	0	0	0	0	0	0
Dolargan, Ketonal	1	1	1	1	1	1
Dolargan, Pyralgina	1	1	1	1	1	1
Tramal, Pyralgina	3	3	3	3	3	3
Ketonal, Pyralgina	6	6	6	7	7	7

be noticed. The obtained results contradict a common belief that the pain after thoracosurgical procedures is more severe than after general surgery procedures [3]. The research authors emphasize an important aspect in the treatment of postoperative pain—a patient–nurse–doctor relationship. The process of treatment and nursing care, particularly in surgical wards, has to be realised in a therapeutic team with nurses also taking part in it. A worth noticing fact is that nurses while evaluating patients' self-care abilities pay too little attention to pain-related complaints reported by patients.

## Conclusions

Patients after thoracosurgical procedures feel less pain than after the procedures within the abdominal region. This theory should be explored in further research. The differences between the intensity of pain and the applied analgesic treatment in thoracosurgical and general surgery patients indicate the necessity of a detailed analysis concerning the procedures of analgesic treatment used in the wards. While evaluating patients' self-care abilities nurses should pay more attention to pain-related complaints made by patients, and using the VAS scale for pain evaluation should become a routine during the nursing care process of patients after surgical procedures.

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