WIOLETTA A. MĘDRZYCKA-DĄBROWSKA^{1, A-E}, SEBASTIAN DĄBROWSKI^{2, B, C, E},
ANDRZEJ BASIŃSKI^{3, E, F}, ANNA MAŁECKA-DUBIELA^{1, B, E, F}

Identification and Comparison of Barriers to Assessing and Combating Acute and Postoperative Pain in Elderly Patients in Surgical Wards of Polish Hospitals: A Multicenter Study

¹ Department of General Nursing, Medical University of Gdańsk, Poland

² Anesthesiology and Intensive Care Unit, District Health Center in Malbork, Poland

³ Department of Clinical Emergency, Medical University of Gdańsk, Poland

A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article

Abstract

Background. Inadequate pain monitoring and management in hospitalized patients poses a serious clinical problem which has been extensively covered in literature for over 25 years.

Objectives. The purpose of the paper was to learn about and compare the existing barriers to effective analgesia controlled by nurses on surgical wards in Polish hospitals.

Material and Methods. The study was carried out upon the approval of the study protocol by the Independent Bioethics Committee for Scientific Research of the Medical University of Gdańsk. The research project was multicenter and took a year. The study was questionnaire-based. It used the Polish version of the Nurses' Perceived Obstacles to Pain Assessment and Management Practices questionnaire. The study included a total of 1300 nurses working on surgical wards.

Results. The barriers most frequently observed by the respondents were: disorganization of the healthcare system, physicians' mistrust of pain assessment by nursing staff, difficulty contacting and communicating with physicians to discuss the results of patients' pain assessments and difficulties experienced by elderly patients with completing pain assessment scales.

Conclusions. The barriers most frequently impeding pain therapy in elderly patients are associated with the healthcare system, and they were more frequently present on the anesthesiology and intensive care ward and in the emergency department, and occurred the least frequently on the surgical ward. Patient-related problems were more frequent on the anesthesiology and intensive care wards than in the emergency department. Doctor-related problems most frequently occurred on the gynecological ward, while nurse-related problems were more frequent on the anesthesiology and intensive care ward (*Adv Clin Exp Med* 2016, 25, 1, 135–144).

Key words: barriers, acute pain, department, age.

Inadequate pain monitoring and management in hospitalized patients poses a serious clinical problem which has been extensively covered in literature for over 25 years. For a long time pain management had not been given proper attention, and consequently it was not regarded as a necessary constituent of post-operative care by patients and physicians. Uncontrolled pain disturbs the physical, social and psychological functioning of

patients. Pain, if untreated, may considerably affect the patient's quality of life or their willingness to co-operate in the course of treatment. Inadequate pain monitoring and management may result in slower recovery, more frequent complications, anxiety, sleep disorders and a reduced quality of life [1].

Advancements in pain research and pain relief methods since the late 1980s have resulted in

an increase in the nurse's role in pain management and monitoring [2]. The end of the 1980s and the beginning of the 1990s, in Western countries, initiated the process of nurses coordinating acute pain management teams [3]. Nowadays, pain management is recognized as a separate specialization for nurses. It offers nurses a wide range of pain management options and career opportunities in the care of patients suffering from pain [4]. They are mostly nurse anesthetists with a master's or PhD degree and extensive practical experience.

Purpose of the Paper

The purpose of the paper was to learn about and compare the existing barriers to effective analgesia controlled by nurses on surgical wards in Polish hospitals.

Material and Methods

The study was conducted with the approval of the study protocol by the Independent Bioethics Committee for Scientific Research of the Medical University of Gdańsk, approval no. NK-BBN/238/2012. The study project was multicenter and it took over a year. The study was questionnaire-based. It used a questionnaire collecting demographic data of our own design and the Polish version of the questionnaire by Coker et al. – Nurses' Perceived Obstacles to Pain Assessment and Management Practices. The questionnaire included 40 questions intended to assess how often the obstacles defined by nurses impeded optimum pain assessment and its management in elderly patients. With the authors' permission, two questions in the questionnaire were modified to adapt the questions to the issues of postoperative therapy. The original versions of the tools were analyzed in terms of factor accuracy, internal coherence and discriminating strength. Reasoning on the internal consistency of the questionnaire scales was performed by calculating Cronbach's alpha coefficient of internal consistency. The psychometric parameters obtained were satisfactory. The Polish-language version of the questionnaire was prepared by translating it from English into Polish and then back-translating by two independent translators. The language adaptation and use of the tools for the present study took place with the written permission of the authors.

The study included a total of 2000 nurses working on surgical wards which were selected according to their specificity:

1. Anesthesiology and Intensive Care Ward – the nurses have the best qualifications for pain

monitoring and management, and this is a ward where patients receive post-operative analgesic treatment.

2. Surgical Ward – the nurses do not always have the right qualifications for pain monitoring and management, and this is a ward where pain assessment and management should be continued for at least 3 days.

3. Hospital Emergency Department – providing initial diagnostics and treatment of patients with health- and life-threatening conditions. The structure of procedures reduces the time of contact with patients to the absolute minimum and makes it difficult for staff to assess the remote effects of treatments undertaken. Hence, ensuring effective analgesia in an emergency department setting is a particularly challenging task. According to the statistics, a patient may not receive analgesics when they are required, or treatment may be delayed or inefficient. The phenomenon, known as "oligoanalgesia", has a complex and multifactorial etiology.

4. Gynecological Ward – selected according to diseases present in elderly women, where pain monitoring and management should be continued for at least 3 days.

Statistical Analysis

All the statistical calculations were performed using the statistical package StatSoft Inc. (2011) STATISTICA, v. 10.0 (SN JGNP3087539302AR-E), and an Excel calculation spreadsheet.

Quantitative variables were characterized by means of statistical mean, standard deviation, median, minimum and maximum value (range) and 95% CI (confidence interval). Qualitative variables were presented by means of size and percentage values (percent). The Shapiro-Wilk test was used to verify whether a quantitative variable came from a normally distributed population, and Levene's (Brown-Forsythe's) test was used to verify the hypothesis of equal variances. The significance of differences between the two groups (uncorrelated variables model) was examined by means of significance tests: Student's *t*-test (or Welch's test in the event of inhomogeneity of variance) or Mann-Whitney's test (if the conditions for using Student's *t*-test were not fulfilled or for variables measured on an ordinal scale). The significance of differences between more than two groups was measured by means of the Kruskal-Wallis test. If statistically significant differences between groups were found, Dunn's *post hoc* tests were used.

For a model of two correlated variables, Student's *t*-test or Wilcoxon signed-rank test was used (if the conditions for using Student's *t*-test were

not fulfilled or for variables measured on an ordinal scale). The significance of differences between more than two variables in a model of correlated variables was verified by means of repeated measures analysis of variance or Friedman's test (if the conditions for using repeated measures analysis of variance were not fulfilled or for variables measured on an ordinal scale).

Chi-square independence tests were used for qualitative variables (using Yates correction for below 10 cells, Cochran's conditions test or Fisher's exact test, accordingly).

To establish the correlation, strength and direction between variables, a correlation analysis was used by calculating Pearson's or Spearman's correlation ratios. The significance level assumed in all the calculations was $p = 0.05$.

Respondent Characteristics

The study included 2000 respondents, who submitted a total of 1300 correctly completed questionnaires. Table 1 presents the demographic characteristics of the nurses participating in the study. The largest percentage of the nurses (40.9%) participating in the study were in the 31–40 age bracket. The work seniority of the nursing staff was analyzed in several brackets. The smallest percentage of respondents, 22.1%, was in the 16–20 age bracket. The analysis of the respondents' level of education showed that most of the respondents – 56.9% – declared secondary education and the least – 10.8% – a bachelor's degree; 49.5% of the respondents worked in a provincial hospital and an overwhelming majority – 65.4% – worked on a surgical ward. 96.7% of the respondents worked as unit nurses. Only 31.4% had access to the Internet at work.

A Chi-square independence test was used and the analysis showed statistically significant differences, $X^2_{(3)} = 9.188$; $p < 0.05$. The job position statistically significantly differed across the wards; the most frequently observed position at the hospital emergency department (ED) was the unit nurse. The Kruskal-Wallis non-parametric test of significance for independent samples was used and it showed statistically significant differences between the respondents' age, as divided by wards. The analysis revealed that the average age was higher on the obstetrics ward than on the anesthesiology and intensive care ward (AIC), $X^2_{(3)} = 10.563$; $p < 0.05$. The nurses' age on the AIC, surgical and ED wards was comparable, $p > 0.05$.

A Chi-square independence test showed statistically significant relationships, $X^2_{(3)} = 32.078$; $p < 0.05$, in which the nurses working on the emergency and obstetrics wards used the Internet during their work time the least frequently.

Table 1. Socio-demographic characteristics of nurses

	Count (n)	Percentage (%)
Sex:		
f	1228	94.5
m	72	5.5
Age (in years):		
21–30	167	12.8
31–40	532	40.9
41–50	487	37.5
51–62	114	8.8
Professional experience (in years):		
1–5	153	11.8
6–10	120	9.2
11–15	226	17.4
16–20	287	22.1
21–25	237	18.2
26–30	181	13.9
31–35	83	6.4
36–42	12	0.9
Education:		
registered nurse	740	56.9
Bachelor of Science in Nursing	141	10.8
Master of Science in Nursing	419	32.2
Appointment:		
staff nurse	1257	96.7
charge nurse	43	3.3
Hospital:		
university	308	23.7
provincial	644	49.5
municipal	348	26.8
Hospital department:		
Anesthesia and Intensive Care Unit	240	18.5
Surgery	850	65.4
Emergency	158	12.2
Gynecology	52	4.0
Internet availability:		
yes	408	31.4
no	852	65.5
sometimes	40	3.07
Total:	1300	100.0

The Chi-square independence test used did not show statistically significant differences between work seniority, education and wards.

Organizational Barriers

Ten questions concerning the healthcare system were isolated from the survey – they are presented in Table 2. The obstacle the most frequently

reported by the respondents was the disorganization of the healthcare system, e.g. caused by a missing signature on a doctor's prescription or a shortage of medications, with the average results on particular wards amounting to $M = (I - 4.43, II - 4.29, III - 4.18, IV - 5.07)$. On the gynecological ward, the problem occurred statistically

significantly more often than on the anesthesiology or surgical wards or in the emergency department, $X^2_{(3)} = 12.195$; $p = 0.007$.

The next problem was the lack of possibility of discussing the pain management therapy of an elderly patient directly with the team, with the mean results on particular wards amounting

Table 2. Characteristics of the frequency of barriers to optimum pain assessment and management in elderly patients related to the healthcare system according to the type of hospital department

	Barriers	HD*	M*	SD*	p-value*
1	Disorganized system of care (e.g. having to hunt for narcotic keys, obtain co-signatures, find drugs, etc.)	I II III IV	4.43 4.29 4.18 5.07	1.91 1.88 1.81 1.74	$X^2_{(3)} = 12.195$; $p = 0.007$
2	Not having a consistent way of assessing pain, from one time to the next, in each older patient	I II III IV	3.58 3.42 3.79 3.93	1.97 1.76 1.87 2.28	$X^2_{(3)} = 9.692$; $p = 0.021$
3	Not having policies/procedures/guidelines that contribute to my knowledge of acceptable best practices around pain assessment and management in older adults	I II III IV	4.00 3.69 3.83 3.57	1.40 1.41 1.52 1.72	$X^2_{(3)} = 13.351$; $p = 0.004$
4	Not having a documented approach to pain assessment for each older patient	I II III IV	3.59 3.36 3.56 2.67	1.54 1.50 1.54 1.59	$X^2_{(3)} = 21.446$; $p < 0.001$
5	Not having a documented pain treatment plan for each older patient	I II III IV	3.87 3.45 3.79 3.47	1.72 1.64 1.58 1.83	$X^2_{(3)} = 18.791$; $p < 0.001$
6	Unavailable comfort measures as alternatives/supplements to pain medications in older patients (e.g. hot/cold packs, mattresses, chairs)	I II III IV	3.92 3.56 3.96 4.03	1.68 1.66 1.57 1.78	$X^2_{(3)} = 18.035$; $p < 0.001$
7	Inadequate time to deliver non-pharmacologic pain relief measures	I II III IV	3.72 3.61 3.71 4.08	1.69 1.52 1.51 1.63	$X^2_{(3)} = 4.663$; $p = 0.198$
8	Inadequate time for health teaching with older patients (e.g. p.r.n. drug order, alternatives, addiction, etc.)	I II III IV	3.97 3.95 4.14 3.68	1.69 1.59 1.66 1.69	$X^2_{(3)} = 4.121$; $p = 0.249$
9	Lack of opportunity to discuss an older patient's pain management directly with care team	I II III IV	4.36 4.14 4.27 4.88	1.58 1.57 1.56 1.45	$X^2_{(3)} = 14.808$; $p = 0.002$
10	Lack of opportunity to consult with clinical pharmacist about pain relief in older patients	I II III IV	4.35 4.34 4.54 4.25	1.73 1.66 1.66 1.94	$X^2_{(3)} = 2.312$; $p = 0.510$

HD* – Hospital Department: Anesthesia and Intensive Care Unit (I), Surgery (II), Emergency (III), Gynecology (IV);

M* – mean; SD* – standard deviation; p-value* – for the test of difference between hospital departments.

to $M = (I - 4.36, II - 4.14, III - 4.27, IV - 4.88)$. On the gynecological ward, however, the problem occurred statistically significantly more often than on the surgical ward or emergency department, $X^2_{(3)} = 14.808$; $p = 0.002$.

In addition, the non-parametric test of significance for independent samples was applied and the analysis showed a statistically significant relationship between the variables. Organizational problems were reported most frequently on the anesthesiology and intensive care ward, $X^2_{(2)} = 13.656$; $p = 0.003$.

Physician-Related Barriers

Five questions concerning physician-related barriers were isolated from the survey – the results are presented in Table 3. The problem the most frequently identified by nurses was the physicians' distrust of pain assessment in elderly patients by the nursing staff, with the mean results on particular wards amounting to $M = (I - 3.91, II - 3.52, III - 3.70, IV - 4.35)$. On the gynecological ward, however, the problem occurred statistically significantly more often than on the surgical ward or in the emergency department, $X^2_{(3)} = 22.232$; $p < 0.001$.

The non-parametric test of significance for independent samples was applied. The analysis showed a statistically significant relationship between the variables. Physician-related barriers were most prevalent on the gynecological ward, $X^2_{(2)} = 43.150$; $p < 0.001$.

Nurse-Related Barriers

Another 14 questions concerning nurse-perceived barriers to optimum pain assessment and management in elderly patients and related to the nursing staff were isolated and they are presented in Table 4. It was demonstrated that the barrier the most frequently identified by nurses was difficulty contacting or communicating with physicians to discuss the results of pain assessments in elderly patients, with the following mean results on particular wards: $M = (I - 3.91, II - 3.52, III - 3.70, IV - 4.35)$. On the gynecological ward, however, the problem occurred statistically significantly more often than on the surgical ward or in the emergency department, $X^2_{(3)} = 8.279$; $p = 0.041$.

The non-parametric test of significance for independent samples was applied. The analysis showed a statistically significant relationship between the variables. Nurse-related barriers were

Table 3. Frequency characteristics of obstacles to optimal pain assessment and treatment in elderly patients associated with physicians, according to the type of hospital department

	Barriers	HD*	M*	SD*	p-value*
1	Physicians' lack of trust in the nursing assessment of pain in older patients	I II III IV	3.91 3.52 3.70 4.35	1.52 1.63 1.50 1.97	$X^2_{(3)} = 22.232$; $p < 0.001$
2	Physicians' lack of knowledge and experience with prescribing pain medications	I II III IV	3.73 3.35 3.67 3.90	1.51 1.53 1.44 1.59	$X^2_{(3)} = 22.166$; $p < 0.001$
3	Antipsychotics are considered before pain medications in agitated patients	I II III IV	4.07 3.53 3.78 3.58	1.53 1.53 1.36 1.44	$X^2_{(3)} = 29.131$; $p < 0.001$
4	Physicians' reluctance to prescribe adequate pain relief in older patients for fear of overmedicating those with dementia or delirium	I II III IV	3.85 3.47 3.39 4.02	1.41 1.32 1.30 1.65	$X^2_{(3)} = 22.249$; $p < 0.001$
5	The "older person is dying anyway" attitude among colleagues on the unit	I II III IV	3.13 2.78 3.32 3.37	1.91 1.83 1.99 2.02	$X^2_{(3)} = 20.249$; $p < 0.001$

HD* – Hospital Department: Anesthesia and Intensive Care Unit (I), Surgery (II), Emergency (III), Gynecology (IV);

M* – mean; SD* – standard deviation; p-value* – for the test of difference between hospital departments.

Table 4. Frequency characteristics of obstacles to optimal pain assessment and treatment in elderly patients associated with nursing staff, according to the type of hospital department

	Barriers	HD*	M*	SD*	p-value*
1	Difficulty contacting or communicating with physicians to discuss pain assessment findings in older patients	I II III IV	3.92 3.75 3.73 4.35	1.59 1.63 1.46 1.82	$X^2_{(3)} = 8.279$; $p = 0.041$
2	Not expecting pain in older patients on our unit unless the diagnosis provides a clue to pain as a potential symptom	I II III IV	3.87 3.81 3.73 4.25	1.51 1.60 1.43 1.88	$X^2_{(3)} = 3.728$; $p = 0.292$
3	Difficulty believing pain reports by older patients because they are inconsistent from one time to the next, and do not match their non-verbal behavior	I II III IV	3.53 3.15 3.19 3.28	1.40 1.30 1.28 1.32	$X^2_{(3)} = 16.208$; $p = 0.001$
4	Not knowing how much pain is acceptable to each older patient (e.g. pain tolerance, discomfort level)	I II III IV	3.76 3.59 3.54 3.37	1.21 1.22 1.30 1.38	$X^2_{(3)} = 9.462$; $p = 0.024$
5	Not knowing older patients' pain levels due to inadequate time spent with them	I II III IV	4.06 3.81 3.85 3.45	1.22 1.35 1.33 1.50	$X^2_{(3)} = 14.667$; $p = 0.002$
6	Not knowing whether to believe the older patient's pain report or the family's perception of the person's pain instead	I II III IV	4.17 3.82 3.97 3.37	1.42 1.36 1.50 1.54	$X^2_{(3)} = 20.760$; $p < 0.001$
7	Concentrating on administering regularly scheduled medications and not checking for and offering p.r.n. pain relief unless the patient requests it	I II III IV	3.97 3.78 3.86 3.42	1.28 1.31 1.39 1.24	$X^2_{(3)} = 12.664$; $p = 0.005$
8	My own reluctance to give pain medication to older patients for fear of overmedicating	I II III IV	3.66 3.42 3.62 2.97	1.30 1.33 1.49 1.44	$X^2_{(3)} = 16.301$; $p = 0.001$
9	Inconsistent practices around giving p.r.n. medications to an older patient (because the decision to administer pain medication is up to the assigned nurse, and varies from one to another)	I II III IV	2.68 2.52 2.70 2.10	1.44 1.36 1.39 1.24	$X^2_{(3)} = 12.504$; $p = 0.006$
10	Uncertainty about how to best time the administration of p.r.n. pain medications when ordered along with scheduled pain medications in older patients	I II III IV	3.12 3.00 2.64 2.33	1.49 1.43 1.22 1.39	$X^2_{(3)} = 26.249$; $p < 0.001$
11	Not having a consistent way of receiving tips from nurses on previous shifts about pain assessment and management strategies for each of my older patients	I II III IV	3.29 3.13 2.94 2.88	1.29 1.27 1.14 1.14	$X^2_{(3)} = 14.421$; $p = 0.002$
12	Lack of clinical confidence in assessing a variety of types of pain in older patients	I II III IV	3.27 3.10 3.32 2.78	1.32 1.40 1.47 1.44	$X^2_{(3)} = 8.446$; $p = 0.038$

Table 4. Frequency characteristics of obstacles to optimal pain assessment and treatment in elderly patients associated with nursing staff, according to the type of hospital department – cont.

	Barriers	HD*	M*	SD*	p-value*
13	The tendency to document only if pain relief is <i>not</i> achieved or if the patient refuses pain medication	I	3.91	1.46	$X^2_{(3)} = 13.239$; $p = 0.004$
		II	3.59	1.40	
		III	3.87	1.44	
		IV	3.83	1.49	
14	Difficulty contacting or communicating with physicians to discuss treatment of pain in older patients	I	3.59	1.62	$X^2_{(3)} = 17.396$; $p = 0.001$
		II	3.29	1.51	
		III	3.72	1.55	
		IV	3.57	1.64	

HD* – Hospital Department: Anesthesia and Intensive Care Unit (I), Surgery (II), Emergency (III), Gynecology (IV);

M* – mean; SD* – standard deviation; p-value* – for the test of difference between hospital departments.

more frequent on the anesthesiology and intensive care ward than on the surgical and gynecological wards, $X^2_{(2)} = 19.136$; $p < 0.001$.

Patient-Related Barriers

Another 11 questions concerning nurse-perceived barriers to optimum pain assessment and management in elderly patients and related to patients were isolated and they are presented in Table 5. It was demonstrated that elderly patients' difficulties with completing pain rating scales were the most frequently perceived problem, and the average result on each of the wards was $M = (I - 4.50, II - 4.41, III - 4.31, IV - 4.62)$. However, no statistically significant differences between the wards were found. Another problem was the failure to report pain complaints to nurses and to physicians above all, the average results were $M = (I - 4.21, II - 3.98, III - 4.03, IV - 4.17)$. On the anesthesiology and intensive care ward, the problem was statistically significantly more frequent than on the surgical ward or in the emergency department, $X^2_{(3)} = 6.392$; $p = 0.094$.

The non-parametric test of significance for independent samples was applied. The analysis showed a statistically significant relationship between the variables. Patient-related barriers were more frequent on the anesthesiology and intensive care ward than in the emergency department, $X^2_{(2)} = 7.819$; $p = 0.050$.

To sum up, the frequency of barriers to pain management in elderly patients by counting the overall average result in each of the groups, the problems related to the healthcare system came first with the average result of $M = (I - 3.98, II - 3.78, III - 3.98, IV - 3.96)$. Secondly, there were patient-related barriers, where the average result was $M = (I - 3.89, II - 3.77, III - 3.67, IV - 3.77)$. They were followed by physician-related barriers,

where the overall average result was $M = (I - 3.74, II - 3.33, III - 3.57, IV - 3.84)$, and nurse-related barriers, $M = (I - 3.63, II - 3.41, III - 3.48, IV - 3.28)$.

Demographic Variables and Nurse Perception

On the anesthesiology ward, physician-related barriers diminish with age, $R = -0.135$; $p < 0.028$, and seniority, $R = -0.142$; $p < 0.020$, and they increase with the level of education, $R = 0.129$; $p < 0.036$.

On the surgical ward, organizational barriers, $R = 0.081$; $p < 0.009$, and nurse-related barriers, $R = 0.065$; $p < 0.036$, increase with the level of education.

In the emergency department, organizational barriers, $R = 0.180$; $p < 0.006$, physician-related barriers, $R = 0.159$; $p < 0.017$, and nurse-related barriers, $R = 0.125$; $p < 0.060$ increase with age. On the gynecological ward, nurse-related barriers increase with age, $R = 0.305$; $p < 0.018$, and seniority, $R = 0.294$; $p < 0.022$.

In the combined group, organizational barriers increase with the level of education, $R = 0.048$; $p < 0.057$. In respect of the other variables, no statistically significant relationships were found, $p > 0.05$.

Discussion

Post-operative pain management is a multi-dimensional problem confronted by both members of interdisciplinary teams and by nurses taking direct care of patients [5]. In recent years, the traditional and commonly-used pain relief methods have given rise to quite a lot of criticism. The reasons for inadequate pain management can be

Table 5. Frequency characteristics of obstacles to optimal pain assessment and treatment in elderly patients, associated with the patients, according to the type of hospital department

	Barriers	HD*	M*	SD*	p-value*
1	Older patients' difficulty with completing pain scales (e.g. 0–10)	I II III IV	4.50 4.41 4.31 4.62	1.25 1.31 1.25 1.15	$X^2_{(3)} = 3.103$; $p = 0.376$
2	Older patients' reluctance to take pain medication for fear of addiction	I II III IV	3.10 3.26 3.03 3.15	1.48 1.33 1.38 1.77	$X^2_{(3)} = 8.688$; $p = 0.034$
3	Older patients not wanting to bother the nurses	I II III IV	3.64 3.71 3.21 3.93	1.35 1.31 1.31 1.79	$X^2_{(3)} = 27.089$; $p < 0.001$
4	Older patients denying their disease process by denying pain	I II III IV	3.64 3.55 3.50 3.17	1.38 1.23 1.27 1.37	$X^2_{(3)} = 6.878$; $p = 0.076$
5	Older patients' willingness to put up with chronic pain	I II III IV	3.99 3.91 3.60 3.98	1.28 1.20 1.15 1.35	$X^2_{(3)} = 13.024$; $p = 0.005$
6	Older patients' reluctance to take pain medications because of side effects (e.g. constipation, how it makes them feel, etc.)	I II III IV	3.75 3.49 3.54 3.55	1.37 1.32 1.31 1.55	$X^2_{(3)} = 6.648$; $p = 0.084$
7	Difficulty assessing pain in older people due to language barriers	I II III IV	3.80 3.76 3.47 3.85	1.66 1.64 1.45 1.40	$X^2_{(3)} = 7.062$; $p = 0.070$
15	Difficulty assessing pain in older people due to problems with cognition (delirium, dementia, etc.)	I II III IV	3.65 3.29 3.39 3.08	1.57 1.47 1.44 1.75	$X^2_{(3)} = 13.832$; $p = 0.003$
16	Difficulty assessing pain in older people due to sensory problems (hearing deficits, vision deficits, etc.)	I II III IV	4.21 3.98 4.16 3.72	1.38 1.36 1.28 1.44	$X^2_{(3)} = 7.711$; $p = 0.059$
17	Difficulty assessing pain in older people due to alterations in mood (depression, etc.)	I II III IV	4.30 4.13 4.09 4.25	1.18 1.27 1.20 1.19	$X^2_{(3)} = 2.825$; $p = 0.419$
18	Patients reporting their pain to the doctor, but not to the nurse	I II III IV	4.21 3.98 4.03 4.17	1.12 1.21 1.10 1.09	$X^2_{(3)} = 6.392$; $p = 0.094$

HD* – Hospital Department: Anesthesia and Intensive Care Unit (I), Surgery (II), Emergency (III), Gynecology (IV);
M* – mean; SD* – standard deviation; p-value* – is for the test of difference between hospital department.

found not only in ignorance but also in the deep-rooted beliefs of medical staff about the nature of pain and its management [5, 6]. The findings of our studies, based on quite a large representative group, provide valuable information on the prevalence of barriers to pain monitoring and management in elderly patients. They demonstrate that nurse-perceived barriers to post-operative pain management have a tendency to increase, particularly on those wards where the issue should be regarded as important quality-wise. The barriers to pain assessment and management related to the healthcare system include the absence of clearly defined procedures in the past and failure to regard pain as a priority. Some healthcare facilities still have not adopted a standard pain assessment tool nor ensured sufficient time and space in the records for the documentation of information on pain intensity. The study by Kerkhof demonstrated that the vast majority of Acute Pain Services in Canada employ well-qualified nurses who have completed courses and specializations [6]. In Poland, nurses/midwives, regardless of the courses completed, do not have the necessary qualifications to independently decide about the pharmacological treatment of post-operative pain. Post-operative pain management is mostly conducted in agreement with an anesthesiologist or a physician in charge (e.g. a surgeon), according to an individual medical order sheet. In certain situations, a nurse/midwife may administer an analgesic on demand without a medical order. The qualifications and competences of nurses and midwives are governed by the Regulations of the Minister of Health of 7 November, 2007 on the types and scope of preventive, diagnostic, therapeutic and rehabilitation services provided by a nurse or a midwife independently, i.e. without a doctor's order. In acute pain management, as part of the independent provision of health services, every nurse is authorized to administer on-demand analgesics such as paracetamol and metamizolum natrium by the oral or rectal route, to patients in emergency cases, without a doctor's order. In emergency cases, a system nurse performing the emergency medical procedures specified in the regulations is authorized to administer on demand, without a doctor's order, such analgesics as, for example, ketoprofen, (intramuscularly, intravenously or intraosseously) or morphine sulphate, to a patient [8]. The legislation limits the professional independence of nurses. They sometimes abuse their authority, which may result in adverse reactions [7], while as a consequence of the absence of a medical order or its modification in relation to pain intensity, the patient may not receive the medication in due time. Another problem observed in

this area is difficulty contacting or communicating with physicians to discuss the pain therapy to be administered to a patient, and it is nurses who frequently serve as intermediaries between physicians and patients and play a key role in the observation of patients' pain complaints. Similar results were presented in the study [9], where 70% of the 247 nurses studied had difficulty communicating with physicians to discuss pain management in patients. In Egan's study, this barrier was also ranked first [1]. Nurses in Poland, despite the fact that in 1996 they became professionally independent and can now study to obtain the 1st, 2nd and 3rd cycle degrees, are still not viewed as doctors' partners at work but are rather expected to merely execute doctors' orders. The lack of cooperation between nurses and physicians disorganizes pain management, which is still not considered a priority in Poland, and the negative effects of this gap can clearly be seen in our results. In addition, the nurses believe that elderly patients find it difficult to complete pain rating scales. In the study [1], over half of the nurses pointed to problems with completing numerical pain rating scales 0–10. Pain intensity scales used during hospital and out-of-hospital treatment can serve as an incentive for discussion and education, especially in relation to patients who find it difficult to precisely describe pain intensity. Although they are but one of the tools used for general pain evaluation, they can help define the effectiveness of pain therapy when used at the most important moments: at rest, during activity, at the best and the worst moment of the day, as a general average and in relation to the goals set by a patient [10]. The evaluation of pain intensity by means of scales, and its recording, allow doctors and nurses to assess the pain management plan and introduce changes thereto in accordance with the key pain management objectives, namely: a reduction of pain and bothersome side effects and an improvement of functioning and quality of life [11]. Some authors emphasize that pain is a common complaint among patients so it is advisable to offer them a greater variety of evidence-based tools. This results from the great diversity of health problems that are likely to impair cognitive processes. Unfortunately, scales of little reliability and correctness are sometimes used in practice [12]. Effective pain relief is out of the question unless its intensity is regularly monitored. On the basis of the references analyzed and the recommendations issued by the Polish Association for the Study of Pain, it should be concluded that postoperative pain has become a priority issue at healthcare facilities, especially on surgical wards. It is worrying that the problems most frequently interfering with pain management in elderly

patients occurred the most frequently on the anesthesiology and intensive care ward. It is a ward where pain management is the domain of anesthesiologists, and pain monitoring is the task of nurse anesthetists in the anesthesia and post-anesthesia period. Owing to a cooperative relationship between the two professions, the barriers encountered by nurses could be eliminated by a properly cooperating team. To achieve this, meetings of the two professional groups should be organized to discuss issues related to pain management and look at the measures proposed. Insufficient pain management is not an insoluble problem [1]. Education is an effective way of removing the barriers to pain assessment and management. Regular educational programs addressed to all the healthcare employees involved in pain management are needed [13, 14]. In developing countries, where healthcare resources are insufficient, it is important to follow Evidence-Based Practices (EBPs). The implementation of EBPs in postoperative pain management may considerably improve the quality of medical services and care.

Implications for Practice

Although there are options for pain relief after surgery, they are still insufficiently used. Postoperative pain management in Poland needs considerable improvement. This study can contribute to the improvement of pain management quality by supporting and developing practical guidelines or management algorithms for nurses, and facilitating the effective implementation of new pain management practices for nurses on surgical wards.

The authors have concluded that barriers interfering the most with pain management in elderly patients are associated with the healthcare system and occurred the most frequently on the anesthesiology and intensive care ward, and the least frequently on the surgical ward. Patient-related barriers were more frequent on the anesthesiology and intensive care ward than in the emergency department. Physician-related barriers were the most frequent on the gynecological ward, and nurse-related barriers were more frequent on the anesthesiology and intensive care ward.

References

- [1] **Elcigil A, Maltepe H, Esrefgil G, Mutafoğlu K:** Nurses' perceived barriers to assessment and management of pain in a university hospital. *J Pediatr Hematol Oncol* 2011, 33, 33–38.
- [2] **Bainbridge D, Martin JE, Cheng DC:** Patient-controlled versus nurse-controlled analgesia after cardiac surgery – a meta-analysis. *Can J Anaesth* 2006, 53, 492–499.
- [3] **Howard RF, Lloyd-Thomas A, Thomas M, Williams DG, Saul R, Bruce E, Peters J:** Nurse-controlled analgesia (NCA) following major surgery in 10,000 patients in a children's hospital. *Paediatr Anaesth* 2010, 20, 126–134.
- [4] **Parsons G:** Patient controlled analgesia was more effective than nurse controlled analgesia after cardiac surgery. *Evid Based Nurs* 2000, 3, 53.
- [5] **Pellino TA, Willens J, Polomano RC, Heye M:** The American Society of Pain Management Nurses practice analysis: role delineation study. *Pain Manag Nurs* 2002, 3, 2–15.
- [6] **Kerkhof VD, Goldstein E:** A survey of directors of Canadian academic acute pain management services: the nursing team members role. *Can J Anaesth* 2002, 49, 579–582.
- [7] **Mędrzycka-Dąbrowska W, Ogrodniczuk M, Dąbrowski S:** Role of a nurse in the process of therapy of postoperative pain, part 1. *Anestezjol Rat* 2012, 6, 221–227.
- [8] **Mędrzycka-Dąbrowska W, Ogrodniczuk M, Dąbrowski S:** Role of a nurse in the process of assessment of the therapy of postoperative pain, part 2. *Anestezjol Rat* 2014, 8, 475–480.
- [9] **Egan M, Cornally N:** Identifying barriers to pain management in long-term care. *Nurs Older People* 2013, 25, 25–31.
- [10] **Horbury C, Henderson A, Bromley B:** Influences of patient behavior on clinical nurses' pain assessment: implications for continuing education. *J Contin Educ Nurs* 2005, 36, 18–24.
- [11] **Brown D, McCormack B:** Determining factors that have an impact upon effective evidence-based pain management with older people, following colorectal surgery: An ethnographic study. *J Clin Nurs* 2006, 15, 1287–1298.
- [12] **Kaye AD, Baluch A, Scott JT:** Pain Management in the Elderly Population: A Review. *Ochsner* 2010, 10, 179–187.
- [13] **Harmer M, Davies KA:** The effect of education, assessment and a standardized prescription on postoperative pain management. The value of clinical audit in the establishment of acute pain services. *Anaesthesia* 1998, 53, 424–430.
- [14] **Idvall E, Ehrenberg A:** Nursing documentation of postoperative pain management. *J Clin Nurs* 2002, 11, 734–742.

Address for correspondence:

Wioletta Mędrzycka-Dąbrowska
Department of General Nursing
Medical University of Gdańsk
Dębinki 7
80-952 Gdańsk
Poland
E-mail: wioletta.medrzycka@gumed.edu.pl

Conflict of interest: None declared

Received: 28.11.2014

Revised: 15.01.2015

Accepted: 16.02.2015