journal homepage: http://kont.zsf.jcu.cz
DOI: 10.32725/kont.2023.027

KONTAKT / Journal of nursing and social sciences related to health and illness

Original research article

The relationship between unpleasant experiences in the anaesthetic period and selected patient characteristics

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Abstract
Purpose: We focused on anaesthesia and its impact on patients' mental mood.
Design: We followed the relationship between the occurrence of unpleasant experiences of patients during anaesthesia and demographic data.
Methods: The group consisted of 219 patients after anaesthesia. We administered questionnaires to patients at the University Hospital Bratislava between November 2010 and March 2011.
Results: The most important results are the subsequent investigation of the relationship between individual unpleasant experiences and the age of the patients, where we found statistical significance in unpleasant experiences such as recall without pain (p = 0.015), vomiting (p = 0.029), muscle weakness (p = 0.048), and headache (p = 0.015); and when evaluating the relationship between the incidence of unpleasant experiences and sex, we found a statistically significant relationship in the incidence of nausea (p = 0.000), breathing problems (p = 0.048), vomiting (p = 0.015), pain in the surgical wound (p = 0.001), and muscle weakness (p = 0.003).
Conclusion: Results confirm the relationship between the occurrence of unpleasant experiences of patients during anaesthesia and their demographic data. Based on our findings, we propose creating protocols for preoperative preparation, focusing on identifying the most common unpleasant experiences in patients related to anaesthesia.

Keywords: Anaesthesia; Nursing Care; Patient; Unpleasant experiences

Abbreviations:
AM: arithmetic mean, DGO: 1st Department of Gynaecology and Obstetrics, DN: Department of Neurosurgery, DS: Department of Surgery, DTS: Department of Trauma Surgery, DU: Department of Urology, GA: general anaesthesia, LA: local anaesthesia, n: number of patients; p: level of significance, SD: standard deviation, SMU: Slovak Medical University in Bratislava, UHB: University Hospital Bratislava

Introduction

From currently available sources, theoretical background, and real practical experience, it is known that almost all methods of anaesthesia, both general anaesthesia (GA) and local anaesthesia (LA), are associated with several risks and complications that affect the morbidity and mortality of patients (Gottschalk et al., 2011; Macfarlane et al., 2021; Stratmann, 2011). For the anaesthesiology team, the prevention of risks and hazards during anaesthesia consists of careful pre-anaesthetic examination, optimal pre-anaesthetic preparation, continuous clinical and instrumental monitoring of patients, prevention of aspiration at initiation, monitoring of the operation, and supervision of patients in the immediate postoperative period. Reducing the risks or hazards associated with the administration of anaesthesia to patients can be positively influenced by proper nursing care, which must be provided continuously during the perianaesthetic period. Taking into account the feelings and needs of patients is an integral part of risk prevention. Identifying patient preferences and needs can be very important in achieving high quality nursing care. In the period before and after anaesthesia, communication between the anaesthetic nurse and patients is important, as is patients' feedback.

Purpose

The subject of the research was to evaluate the experience of patients with anaesthesia and to identify their most common

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Submitted: 2023-03-02 • Accepted: 2023-08-03 • Prepublished online: 2023-08-04
KONTAKT 25/3: 191–199 • EISSN 1804-7122 • ISSN 1212-4117

unpleasant experiences in the perianaesthetic period. Macario et al. (1999) investigated the negative experiences of patients during anaesthesia. Based on data from the literature in the field of evaluating pre-anaesthetic training and learning about patients' experience with anaesthesia, we can assume that unpleasant experiences in patients in the perianaesthetic period depend on age, gender, education, ward in which the patients are hospitalized, and type of anaesthesia.

Materials and methods

The results published in this article are based on the author's original dissertation (Rybárová, 2011); the data published here are only partial results, focused mainly on the post-anaesthetic period, taking into account selected demographic data. The main research was preceded by a pilot study to verify the individual methodological procedures. The pilot study cohort consisted of 30 patients, and the main study cohort consisted of 219 patients. Participation in the research was voluntary. The return rate of the questionnaires was 100% in the pilot study and 95.22% in the main study. The pilot study was conducted in October 2010, and the main study from November 2010 to March 2011. The set of this cohort study consisted of patients for whom surgery was indicated (surgery procedure): abdominal surgery, trauma surgery, neurosurgery, gynaecology-obstetrics, and urology. Data collection took about one calendar month. All workplaces where the cohort study was carried out are listed here (also with abbreviations). We administered the questionnaires to patients in person at the University Hospital Bratislava (UHB) and Ladislav Dérer Hospital in the Department of Surgery (DS), Slovak Medical University in Bratislava (SMU) and UHB; Department of Trauma Surgery (DTS), SMU and UHB; Department of Urology (DU) Faculty of Medicine Comenius University Bratislava, SMU and UHB; Department of Neurosurgery (DN), Faculty of Medicine, Comenius University Bratislava, SMU and UHB; and 1st Department of Gynaecology and Obstetrics (DGO), SMU and UHB. When necessary, we helped patients complete the questionnaire. The group consisted of patients who were one to three days after anaesthesia. Patients who underwent outpatient anaesthesia at the time of the study, and patients with whom communication was not possible for some reason were excluded from the cohort.

The collection of data and empirical data from clinical practice that was necessary for the research took place with the consent of the Director of the UHB, the Deputy Head of Nursing, the Head of the Department of Anaesthesiology and Intensive Medicine at SMU and UHB, and the approval of the heads of UHB departments where the research was carried out. The questionnaires were approved by members of the UHB Ethics Committee (ruling R5/2362-2/2010). We also obtained the approval of the ethics committee of the hospital and individual clinics where the research took place.

A questionnaire method was used for data collection. Patients completed the questionnaire on the first to the third day after anaesthesia, and the questionnaire aimed at assessing patient expectations after anaesthesia in hindsight.

The self-design questionnaire contained five semi-open questions and six closed questions. At the end of the questionnaire, eight demographic questions were included (age, gender, marital status, education, department, type of anaesthesia, type of surgery, and pain related to anaesthesia).

As patients provided subjective answers to some questions on a 5-point scale (no intensity = 1 point, high intensity = 5 points), the results are recorded in arithmetic mean (AM) values. The questionnaire included an instruction letter containing the purpose of the questionnaire and instructions for filling it out. The questionnaires were anonymous.

The pilot study was used to identify ambiguities in the questionnaires, how they were understood, the notice period, and clarification of the breakdown and nature of answers. Based on the pilot study, three questions were reformulated in the main study questionnaire, and in one question the evaluation was changed.

To process and interpret the results obtained we calculated simple frequencies, the percentage evaluation of the file according to the grouping of individual answers. To evaluate the scale items, we determined the arithmetic mean, median, and mode. We tested the statistical significance of individual areas by *t*-test and considered a significance level of $p < 0.05$ to be a statistically significant relationship. We used nonparametric tests for statistical evaluation, considering that the values in the set were not normally distributed. We used the Kruskall–Wallis test to compare several groups. The database was processed in Microsoft Excel 2010 database software and statistical tests were performed in the program SPSS (2007).

Results

The average age of the respondents was 46.3 years and the standard deviation was ± 14.29 with a range of 18–79 years. From selected demographic data, we identified age, sex, educational attainment, department of the hospitalized, and type of anaesthesia.

After anaesthesia, 219 respondents were contacted, of which 31.5% were male and 68.5% female. In the research sample, the highest education achieved by respondents was: primary education 19 (8.7%), secondary vocational 72 (32.9%), secondary academic 87 (39.7%), and university 41 (19.8%). We also determined the number of respondents within the research set by type of department. As one patient did not identify the department in the questionnaire, the total number of evaluated answers for this was 218, with 50 (22.8%) patients hospitalized in the DS, 69 (31.5%) in the DTS, 40 (18.3%) in the DN, 21 (9.6%) in the DU, and 38 (17.4%) in the DGO. Of the total number of respondents, 172 (78.5%) patients underwent general anaesthesia and 47 (21.5%) local anaesthesia.

Our partial goal was to find out unpleasant experiences in patients during the perianaesthetic period. Based on research by Macario et al. (1999), we identified 15 possible unpleasant experiences in patients during the perianaesthetic period (Table 1). Patients reported the intensity of their unpleasant experiences on a scale of one to five, with one meaning no intensity and five meaning the patient was most troubled by the problem. Research by Macario et al. (1999) concluded that the most common negative experience in patients during the perianaesthetic period is pain in the surgical wound, followed by nausea, sore throat, shivering, muscle weakness, and vomiting.

Table 1. Incidence of patient discomfort during anaesthesia

Type of symptom	AM	SD	Median	*n*
Nausea	1.77	1.257	1	218
Recall without pain	1.69	1.239	1	219
Breathing problems	1.37	0.876	1	219
Shivering	1.46	0.968	1	219
Vomiting	1.73	1.210	1	219
Somnolence	1.95	1.242	1	219
Sore throat	1.67	1.135	1	219
Pain in the surgical wound	2.07	1.403	1	219
Muscle weakness	1.70	1.141	1	219
Headache	1.64	1.239	1	219
Loss of mobility	1.59	1.157	1	218
Loss of sensitivity	1.47	0.978	1	219
Being aware and hearing everything	1.43	0.962	1	219
Feeling pain during surgery	1.43	0.990	1	219
Response of no problems	1.54	1.089	1	219

Based on the results, we determined the following order of symptoms troubling patients during anaesthesia: pain in the surgical wound, somnolence, nausea, vomiting, muscle weakness, recall without pain, sore throat, headache, loss of mobility, no problems, loss of sensitivity, shivering, being aware and hearing everything, feeling pain during surgery, and breathing problems. A positive finding was that none of the unpleasant experiences exceeded the value of the arithmetic mean.

We hypothesized that unpleasant experiences during the perianaesthetic period depend on patient age, sex, education, the department in which they are hospitalized, and the type of anaesthesia. We verified this working hypothesis with items focused on identifying demographic data and questions focused on the unpleasant experiences occurring in the patient during anaesthesia. We determined the degree of relationship between two variables for the following: unpleasant experiences in patients in the perianaesthetic period and the age of respondents; unpleasant experiences in patients in the perianaesthetic period and the sex of patients; unpleasant experiences in patients during anaesthesia and maximum achieved education of respondents; unpleasant experiences in patients in the perianaesthetic period and the ward where patients were hospitalized. The starting point of our assumption was a difference in experiencing unpleasant experiences during anaesthesia. We searched for demographic data relationships in individual types of unpleasant experiences, but also unpleasant experiences as a whole. We divided the age limit based on ontogenetic psychology, according to the division of human development into periods in which there are certain common and typical manifestations of behaviour (Langmeier and Krejčířová, 2006). We determined categories of patients aged 18–29 years (younger adulthood), 30–44 years (middle adulthood), 45–60 years (older adulthood), and older than 61 (old age). We assumed that there are changes in the experience of unpleasant experiences based on personality development. We predicted that the older patients were, the more unpleasant experiences they would experience.

When evaluating the statistical dependence between individual unpleasant experiences and the age of patients, we observed significance in recall without pain (p = 0.015). The highest arithmetic mean values were found in patients over 61 years of age (2.09). We discovered the same value of significance (p = 0.015) in headaches. The lowest mean value occurred in respondents over 61 years of age (1.18), indicating a low incidence of headache under anaesthesia. The highest incidence of headache was found in patients aged 30–44 years (1.90). Vomiting was most troubling for patients over 61 years of age (2.24) and least for patients aged 18–29 years (p = 0.029; 1.38). We found a significant statistical value (p = 0.048) when evaluating muscle weakness. Muscle weakness occurred most often among patients aged over 61 years, while the lowest incidence was found in the age category of 18–29 years. This suggests that older patients are less tolerant of anaesthesia risks than younger patients. When evaluating the relationship between the average intensity of unpleasant experiences and patient age, we found a no statistically significant relationship (p = 0.305). We observed the lowest intensity of unpleasant experiences in the age category 18–29 years (1.28), followed by patients over 61 years (1.39), in the age category 30–44 years (1.61), and in the age category 45–60 years (1.64) – Table 2.

Empirical research in this area suggests there are gender differences in certain areas (Kern et al., 2006). Based on this, we found a difference in the experience of unpleasant experiences between men and women. We expected women to experience more unpleasant experiences because women tend to be more open in talking about their problems than men. In Table 3, we can see that the only unpleasant experience that troubled more men (1.57) than women (1.29) and had a statistically significant relationship to gender was breathing problems. We can state that our working hypothesis was confirmed. However, no statistical significance was found in the relationship between unpleasant experiences as a whole and gender (p = 0.318). The average arithmetic values were very similar for men (1.45) and women (1.59), which fulfils our hypothesis that women have a higher incidence of unpleasant experiences.

Table 2. Dependence between unpleasant experiences and the age of patients

Type of symptom	18–29 years		30–44 years		45–60 years		Over 61 years		*p*-value
	AM	SD	AM	SD	AM	SD	AM	SD	
Nausea	1.61	1.166	1.70	1.180	1.77	1.311	2.03	1.357	0.530
Recall without pain	1.59	1.240	1.51	1.146	1.73	1.302	2.09	1.208	0.015*
Breathing problems	1.24	0.830	1.36	0.874	1.40	0.878	1.45	0.938	0.656
Shivering	1.31	0.761	1.41	0.990	1.45	0.870	1.70	1.287	0.547
Vomiting	1.38	0.677	1.49	1.038	1.84	1.294	2.24	1.480	0.029*
Somnolence	1.62	0.903	2.01	1.345	1.99	1.282	2.00	1.173	0.640
Sore throat	1.45	0.948	1.54	1.023	1.69	1.148	2.06	1.391	0.148
Pain in the surgical wound	2.62	1.590	2.06	1.371	1.84	1.338	2.24	1.370	0.094
Muscle weakness	1.41	1.018	1.72	1.149	1.65	1.145	2.06	1.171	0.048*
Headache	1.76	1.154	1.90	1.426	1.57	1.211	1.18	0.769	0.015*
Loss of mobility	1.59	1.268	1.67	1.302	1.56	1.113	1.53	0.842	0.906
Loss of sensitivity	1.45	1.152	1.39	0.927	1.59	1.068	1.33	0.595	0.328
Being aware and hearing everything	1.24	0.689	1.36	0.857	1.50	1.039	1.58	1.146	0.493
Feeling pain during surgery	1.34	0.936	1.51	1.024	1.43	0.956	1.36	1.084	0.565
Response of no problems	1.28	0.751	1.61	1.153	1.64	1.157	1.39	0.998	0.305

Note: * Statistically significant result ($p < 0.05$).

Table 3. Dependence between unpleasant experiences and patient gender

Type of symptom	Male		Female		*p*-value
	AM	SD	AM	SD	
Nausea	1.29	0.925	1.99	1.330	0.000*
Recall without pain	1.59	1.204	1.74	1.255	0.298
Breathing problems	1.57	1.091	1.29	0.745	0.048*
Shivering	1.42	0.881	1.47	1.008	0.974
Vomiting	1.45	0.978	1.86	1.285	0.015*
Somnolence	1.94	1.327	1.95	1.206	0.604
Sore throat	1.61	1.101	1.69	1.152	0.586
Pain in the surgical wound	1.62	1.059	2.28	1.493	0.001*
Muscle weakness	1.36	0.804	1.86	1.237	0.003*
Headache	1.75	1.355	1.59	1.183	0.391
Loss of mobility	1.62	1.246	1.58	1.119	0.840
Loss of sensitivity	1.70	1.216	1.37	0.831	0.082
Being aware and hearing everything	1.39	0.943	1.45	0.973	0.396
Feeling pain during surgery	1.42	0.991	1.44	0.993	0.920
Response of no problems	1.45	1.022	1.59	1.118	0.318

Note: * Statistically significant result ($p < 0.05$).

We also examined the relationship between unpleasant experiences during anaesthesia and the highest level of education achieved. We expected a negative correlation, *i.e.*, that people with higher education would record lower average values of unpleasant experiences.

After evaluating the respondents' answers, we concluded that statistical significance in relation to the occurrence of unpleasant experiences and education was proved for one unpleasant experience, namely recall without pain ($p = 0.035$). In our questionnaire, we described this to the respondents as a state where they remember they were lying on the operating table, they did not feel pain, and the operation was in "full swing". This unpleasant experience bothered patients with elementary education the most (2.37) and was the least important for respondents over 61 years of age (Table 4).

When evaluating the relationship between unpleasant experiences as a whole and education, we did not find statistical significance ($p = 0.714$); the values of arithmetic averages in the categories of individual education achieved were very balanced.

Table 4. Dependence between unpleasant experiences and education

Type of symptom	Elementary education		Secondary vocational education		Grammar school		University education		*p*-value
	AM	SD	AM	SD	AM	SD	AM	SD	
Nausea	1.63	1.065	1.81	1.360	1.77	1.188	1.75	1.335	0.845
Recall without pain	2.37	1.461	1.56	1.112	1.78	1.324	1.44	1.050	0.035*
Breathing problems	1.47	0.964	1.43	0.869	1.38	0.931	1.22	0.725	0.567
Shivering	1.79	1.228	1.54	1.047	1.36	0.807	1.37	0.994	0.294
Vomiting	1.74	1.147	1.90	1.344	1.70	1.132	1.49	1.143	0.272
Somnolence	1.95	1.311	2.19	1.440	1.86	1.080	1.71	1.123	0.288
Sore throat	1.74	1.147	1.82	1.237	1.62	1.113	1.46	0.977	0.480
Pain in the surgical wound	2.16	1.573	2.06	1.393	2.11	1.434	1.98	1.313	0.989
Muscle weakness	1.89	1.329	1.64	1.092	1.79	1.173	1.54	1.075	0.443
Headache	1.84	1.537	1.58	1.172	1.64	1.210	1.63	1.299	0.947
Loss of mobility	1.39	0.778	1.40	0.899	1.74	1.280	1.71	1.383	0.235
Loss of sensitivity	1.32	0.582	1.42	0.884	1.52	1.077	1.54	1.075	0.963
Being aware and hearing everything	1.68	1.157	1.47	0.993	1.47	0.986	1.17	0.704	0.093
Feeling pain during surgery	1.68	1.204	1.39	1.015	1.38	0.905	1.51	1.028	0.584
Response of no problems	1.47	0.964	1.68	1.243	1.47	0.998	1.49	1.052	0.714

Note: * Statistically significant result ($p < 0.05$).

We also investigated the relationship between the occurrence of unpleasant experiences and the department where the patient was hospitalized. We expected to find a difference in the incidence of unpleasant experiences according to the individual department where patients are hospitalized. We confirmed a statistically significant relationship for the following unpleasant experiences: pain in the surgical wound ($p = 0.021$), recall without pain ($p = 0.033$), and breathing troubles ($p = 0.040$). Pain in the surgical wound most disturbed patients in the DU (2.81) and least among respondents hospitalized in the DTS (1.78). The unpleasant experience of recall without pain occurred most often in patients hospitalized in the DU (2.19) and least in the DN (1.40). We found the highest incidence of breathing problems in respondents hospitalized in the DN (1.65) and, to a lesser extent, in the DGO (1.18) – Table 5.

Table 5. Dependence between unpleasant experiences and target department

Type of symptom	DS		DTS		DN		DU		DGO		*p*-value
	AM	SD	AM	SD	AM	SD	AM	SD	AM	SD	
Nausea	1.78	1.217	1.62	1.133	1.65	1.312	1.57	1.207	2.26	1.427	0.065
Recall without pain	1.88	1.319	1.49	1.120	1.40	0.841	2.19	1.569	1.87	1.398	0.033*
Breathing problems	1.54	0.994	1.26	0.656	1.65	1.167	1.19	0.873	1.18	0.609	0.040*
Shivering	1.48	0.995	1.30	0.734	1.50	0.961	1.48	1.123	1.63	1.217	0.768
Vomiting	1.72	1.179	1.54	1.079	1.75	1.296	1.90	1.179	1.95	1.394	0.273
Somnolence	2.16	1.376	1.77	1.202	2.15	1.272	1.81	1.167	1.89	1.134	0.351
Sore throat	1.82	1.240	1.39	0.844	2.03	1.368	1.81	1.209	1.53	1.059	0.052
Pain in the surgical wound	2.02	1.317	1.78	1.174	1.80	1.244	2.81	1.504	2.55	1.766	0.021*
Muscle weakness	1.76	1.117	1.58	1.104	1.55	1.037	2.00	1.342	1.87	1.234	0.374
Headache	1.52	1.129	1.59	1.180	1.75	1.410	1.43	1.028	1.89	1.410	0.636
Loss of mobility	1.60	1.278	1.51	1.072	1.30	0.791	1.71	1.146	1.97	1.404	0.062
Loss of sensitivity	1.54	1.199	1.45	1.022	1.25	0.630	1.67	0.796	1.55	0.978	0.079
Being aware and hearing everything	1.38	1.105	1.45	0.993	1.35	0.770	1.38	0.805	1.58	1.004	0.358
Feeling pain during surgery	1.26	0.777	1.54	1.079	1.28	0.679	1.62	1.244	1.55	1.179	0.360
Response of no problems	1.44	0.861	1.43	1.007	1.45	1.061	2.00	1.449	1.74	1.267	0.342

Note: * Statistically significant result ($p < 0.05$).

We did not find statistical significance when analyzing the results of the relationship between patients' unpleasant experiences during anaesthesia as a whole and the department where the patient was hospitalized (p = 0.342). When evaluating the mean value, we found that the DU have the most unpleasant experiences (2.00).

It is known that each type of anaesthesia, whether general or local, carries many risks and complications. Based on this, we assumed that the incidence of unpleasant experiences would be different in patients who underwent surgery under local anaesthesia (LA) and patients who underwent surgery under general anaesthesia (GA). When analyzing the relationship between the occurrence of unpleasant experiences and the type of anaesthesia, we found statistical significance in several types of unpleasant experiences of patients during anaesthesia (Table 6). According to the greatest statistical significance we can rank them as follows: pain in the surgical wound (p = 0.001), loss of mobility (p = 0.001), loss of sensitivity (p = 0.001), nausea (p = 0.005), vomiting (p = 0.031), and breathing problems (p = 0.036). The occurrence of unpleasant experiences was in line with the problems typical for a given type of anaesthesia. The highest values of the arithmetic mean under general anaesthesia were unpleasant experiences such as nausea (1.88), breathing problems (1.44), vomiting (1.81), and pain in the surgical wound (2.23), and the lowest were registered for these unpleasant experiences in the following values: nausea (1.35), breathing problems (1.16), vomiting (1.45), and pain in the surgical wound (1.51). Under LA, the highest values of the AM had unfavourable experiences such as loss of mobility (2.11) and loss of sensitivity (1.94). On the contrary, the lowest mean values of loss of sensitivity (1.34) and loss of mobility (1.45) were achieved under general anaesthesia, indicating that the occurrence of these unpleasant experiences is not typical under GA. No statistical significance between the occurrence of unpleasant experiences as a whole and the type of anaesthesia was found (p = 0.474).

Table 6. Dependence between unpleasant experiences and type of anaesthesia

Type of symptom	LA		GA		p-value
	AM	SD	AM	SD	
Nausea	1.35	0.948	1.88	1.308	0.005*
Recall without pain	1.70	1.382	1.69	1.201	0.643
Breathing problems	1.15	0.625	1.44	0.925	0.036*
Shivering	1.19	0.537	1.53	1.045	0.089
Vomiting	1.45	1.059	1.81	1.239	0.031*
Somnolence	1.64	0.965	2.03	1.297	0.070
Sore throat	1.49	1.019	1.72	1.162	0.143
Pain in the surgical wound	1.51	1.019	2.23	1.455	0.001*
Muscle weakness	1.87	1.296	1.66	1.094	0.298
Headache	1.96	1.532	1.55	1.136	0.144
Loss of mobility	2.11	1.464	1.45	1.022	0.001*
Loss of sensitivity	1.94	1.389	1.34	0.790	0.001*
Being aware and hearing everything	1.60	1.077	1.39	0.927	0.121
Feeling pain during surgery	1.47	0.905	1.42	1.015	0.405
Response of no problems	1.53	1.177	1.55	1.067	0.474

Note: * Statistically significant result ($p < 0.05$).

Based on analysis of the data, there is a statistically significant relationship between the incidence of unpleasant experiences in patients during anaesthesia and age, sex, highest educational attainment, department, where the patient was hospitalized, and type of anaesthesia.

Discussion

Our work is focused on patients' experiences with anaesthesia. For nurses to provide quality nursing care, they should be aware of patient feelings and priorities, and also the presence of unpleasant experiences that patients may encounter during or after anaesthesia. We compared our results with Macario et al. (1999). Their findings of unpleasant patient experiences were as follows: pain in the surgical wound, nausea, sore throat, shivering, muscle weakness, and vomiting. According to our results, the occurrence of unpleasant experiences that bothered patients the most included pain in the surgical wound, and this troubled women more than men. On this indicator, our results concur with the results of Easter et al. (2010), who point out that in the total population, women outnumber men by 2 : 1 in the incidence of postoperative pain, with sex ratio statistically significant. Also in accordance with the results of Málek et al. (2003), who describes pain in his patients as the worst experience during surgery. However, a positive finding is that there was not a single unpleasant experience for which the intensity reached the average value. The results suggest that emphasis should be placed on monitoring and evaluating patients who report postoperative pain. In their survey, Kristová et al. (2021) mapped the level of satisfying the needs of surgically treated patients in the preoperative and postoperative period. An interesting finding was that in terms of the need to be pain-free, up to 20.5% of patients expressed that this need was not satisfied.

Monitoring and evaluation of postoperative pain is the responsibility of the nurse. According to Easter et al. (2010), nurses have a duty to promote comfort and well-being through therapeutic manipulation of the environment and recognition of pain as a priority in the care they provide.

In subsequent investigation of the relationship between individual unpleasant experiences and the patient's age, we found statistical significance in unpleasant experiences such as recall without pain (p = 0.015), vomiting (p = 0.029), muscle weakness (p = 0.048), and headache (p = 0.015). Patients in the over 61 years age group are more troubled by vomiting, recall without pain, and muscle weakness; headache is the least common unpleasant experience. Adequately addressing postoperative pain, fear, anxiety, and nausea and vomiting by using nonpharmacologic and pharmacologic methods post surgery is important for health professionals (Bulut et al., 2020). Receiving music intervention for 30 minutes was sufficient to reduce patient anxiety after spinal anesthesia – as indicated by the reduced heart rate, respiration rate, systolic blood pressure, diastolic blood pressure, and STAI score (Lee et al., 2017).

In evaluating the relationship between the incidence of unpleasant experiences and sex of patients, we found a statistically significant relationship in the incidence of nausea (p = 0.000), breathing problems (p = 0.048), vomiting (p = 0.015), pain in the surgical wound (p = 0.001), and muscle weakness (p = 0.003). All the unpleasant experiences (except for breathing problems) were more common in women, which may be because women are more likely to report their problems than men.

When studying the relationship between the occurrence of unpleasant experiences and education, statistical significance was only found for recall without pain (p = 0.035). This unpleasant experience troubled patients with basic education the most, with an average value of 2.37.

We also investigated the occurrence of unpleasant experiences depending on the department where the patient was hospitalized. The most unpleasant experiences were experienced by patients from the DU, whose average value was 2.0. These patients experienced pain in the surgical wound (p = 0.021) and recall without pain (p = 0.033). We found the highest incidence of breathing problems (p = 0.040) in patients who were hospitalized in the DN, where the arithmetic mean was 1.65. Arozullah et al. (2000, 2001) identified seven surgically related and pre-existing factors (including functional dependence) associated with postoperative respiratory deterioration, one of them being neurosurgery. Mills (2018) indicates that postoperative pulmonary complications are the most common medium-term complication after major surgery, and have a major impact on patient well-being and outcomes. Adequate analgesia is also vital to allow patients to deep breathe, cough, and mobilise. Chest physiotherapy, early mobilisation, sitting up positioning, and deep breathing and coughing exercises may reduce postoperative pulmonary complications after abdominal surgery (Cassidy et al., 2013).

Based on a comparison of the relationship between the incidence of unpleasant experiences and the type of anaesthesia, we found that the incidence of unpleasant experiences is consistent with the problems typical of general and local anaesthesia. In his publication, Crosson (2018) indicates that the use of LA techniques, local anaesthetic infiltration, and epidurals is considered as indicated and key to patients' pain management. During GA, we observed a higher incidence of pain in the surgical wound, nausea, vomiting, and breathing problems. Of the unpleasant experiences with LA, patients experienced the highest incidence of loss of mobility and loss of sensation. Listening to music with earphones as a form of nonpharmacological intervention reduced anxiety in patients undergoing surgery under LA. The intervention was low cost, safe, and could either complement or act as an alternative to pharmacological sedation (Sven-Olof Trängeberg and Stomberg, 2013).

From the responses of patients and our subsequent findings regarding these facts, we can state that there is a need for nursing staff to improve nursing care by focusing on educating patients before anaesthesia. During education, there should be a focus on proper communication, which takes into account the psychological mood of patients and their needs. While communicating, the nurse should identify the patient's needs and explain the surgical procedure without causing him fear. When communicating, it is important to remember to explain the course of anaesthesia and possible unpleasant experiences. During the first contact with the patient, not only the somatic side is important, but also the emotional and motivational side. Patients often encounter a negative and unprofessional approach from healthcare professionals, families, and communities after being diagnosed. Another unpleasant emotional patient experience is isolation and long-term hospitalization in a closed ward, which brings strong pressure associated with the loss of social contacts, employment, and economic security, resulting in environmental stigmatization or self-stigmatization, when a patient may intentionally isolate and refuse any assistance (Kober et al., 2018).

From the findings, we recommend that anaesthesiology nurses emphasize the course of anaesthesia and possible unpleasant experiences to patients during their work, inform them about the course and stages of pain associated with surgery, provide them with appropriate communication between them and medical staff, taking into account their needs and possible adverse effects on communication (emotions, environment, time, abilities of the communicator), and minimize their degree of effect on patients and recognize their psychological mood before anaesthesia. It is important to ensure an individual approach to patients in the perianaesthetic period. Nurses in perianaesthesia care have primary responsibility for providing safe care through continuous professional development (Jeon et al., 2017). It is necessary to provide anaesthesiology nurses with sufficient psychology knowledge with a focus on developmental changes in the patient's personality and psychological issues, streamline continuous training of nurses, improve work motivation of nurses, and provide opportunities for quality continuing education.

Thus, it may be useful to actively engage patients (as part of the preoperative evaluation and informed consent process) to identify, for example, their three most important clinical outcomes, then tailor the anaesthetic to address their preferences (Macario et al., 1999).

The implementation of evidence-based protocols also plays an important role for the nurse. Through these, a nurse has the opportunity, before and after surgery, to influence a patient's successful recovery (Crosson, 2018). In the field of health care, there is currently a need for nurses to be educated to be able to combine different sources of information and incorporate them into their decision-making and nursing practices. Only in this way can they provide comprehensive, safe, high-quality, and effective care that meets complex and current patient needs (Slezáková, 2020).

Based on our findings, we propose creating protocols for preoperative preparation, focusing on identifying the most common unpleasant experiences in patients related to anaes-

thesia. These developed protocols should be utilized during the pre-anaesthetic examination of patients, following the specified guidelines prior to anaesthesia. The created protocols should be incorporated into the specialization study of the specialized field of anaesthesiology and intensive care as part of the innovation of minimum standards.

Conclusion

Through their nursing activities and influence on patients, nurses can have a positive effect on patients, and on how they heal and integrate into normal life. An operation represents a great psychological burden for patients, and the anaesthesiology nurse is the one who participates in the pre-anaesthetic preparation of patients in the period before the operation, an important part of which is patients' psychological preparation. Patient concerns in the preoperative period occur in almost every patient. Patients are most concerned that they will experience severe pain after anaesthesia. Based on our research, it is odd that it is pain in the surgical wound that bothers patients after anaesthesia to the greatest extent. Relieving fear and anxiety is essential for patients. Proper communication with patients and information help to reduce fear and anxiety. It is also important to note that each patient has a different experience with anaesthesia. Each patient may experience different unpleasant experiences, or the same experiences but of different intensity. In some patients this can be severe pain after surgery, in others breathing problems, vomiting, and many others.

Based on what we know, we can conclude that it is necessary to approach each patient in an individual way. The role of the nurse is to respect patients, and to maintain calm, balance, and patience, as well as to be able to establish individual personal contact and to pay sufficient attention to a patient's complaints, requests, and difficulties. Nurses can achieve quality nursing care if they also focus on patients' needs, preferences and expectations.

Conflict of interest

The authors of this article declare that there is no conflict of interest which could have a possible impact on the validity of the research results obtained.

Vzťah medzi nepríjemnými zážitkami v anestetickom období a vybranými charakteristikami pacienta

Súhrn

Cieľ: Zamerali sme sa na anestéziu a jej vplyv na psychické rozpoloženie pacientov.
Dizajn: Sledovali sme vzťah medzi výskytom nepríjemných zážitkov pacientov počas anestézie a demografickými údajmi.
Metódy: Súbor tvorilo 219 pacientov po anestézii. Pre interpretáciu výsledkov sme vypočítali jednoduché frekvencie, percentuálne hodnotenie súboru, aritmetický priemer, medián a modus. Dotazníky sme pacientom administrovali v Univerzitnej nemocnici Bratislava od novembra 2010 do marca 2011.
Výsledky: Najdôležitejšími výsledkami je zistenie vzťahu medzi jednotlivými nepríjemnými zážitkami a vekom pacientov, kde sme štatistickú významnosť zistili u nepríjemných zážitkov, ako je spomienka bez bolesti (p = 0,015), vracanie (p = 0,029), svalová slabosť (p = 0,048) a bolesť hlavy (p = 0,015); a pri hodnotení vzťahu medzi výskytom nepríjemných zážitkov a pohlavím, kde sme zistili štatisticky významný vzťah vo výskyte nevoľnosti (p = 0,000), problémov s dýchaním (p = 0,048), vracaním (p = 0,015), bolesti v operačnej rane (p = 0,001) a svalovej slabosti (p = 0,003).
Záver: Výsledky potvrdzujú vzťah medzi výskytom nepríjemných zážitkov pacientov počas anestézie a ich demografickými údajmi. Na základe našich zistení navrhujeme vytvorenie protokolov predoperačnej prípravy so zameraním sa na identifikáciu najčastejších nepríjemných zážitkov u pacientov súvisiacich s anestéziou.

Kľúčové slová: anestézia; nepríjemné zážitky; ošetrovateľská starostlivosť; pacient

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