

ASSESSMENT OF THE EFFECTIVENESS OF PROLONGED PRE-MEDICATION DURING OPERATIONS FOR THYROID DISEASES

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<https://doi.org/10.5281/zenodo.10748948>

Abstract. *Thyroid diseases are one of the most common diseases in the field of endocrinology. For example, in toxic and non-toxic goiters, this leads to dysfunction of most organs and systems, with the most significant changes occurring in the circulatory system. However, it is known that the use of drug reimbursement for this condition may not be effective for all patients. In this case, the treatment result depends on the patient's safety during surgery, and in many cases on the premedication technique. In the last decade, the possibilities of premedication during thyroid surgery have expanded significantly. The article discusses the preparation and conduct of premedication of patients with thyroid disease for surgery.*

Keywords: *thyroid gland, non-toxic goiter, modified premedication scale, prolonged premedication, stress protection, droperidol and sibazon.*

Currently, there is a steady increase in the number of thyroid diseases throughout the world. Diffuse nontoxic goiter is the most common pathology, accounting for up to 60% of all cases of thyroid disease. According to the World Health Organization, more than 20 million people suffer from diffuse non-toxic goiter. The disease mainly affects people aged 30-50 years. The functions of the central nervous system and endocrine system, blood circulation and respiration, liver and kidneys, immunity and metabolism change (A.S.Bunyatyan, 2009).

A study of the body's reaction to surgical trauma has shown that, in addition to pain relief and muscle relaxation, suppression of mental reactions, blockade of pathological reflexes, inhibition of the autonomic nervous system and endocrine apparatus, hyperergic reactions, which themselves can cause serious disturbances in the condition of patients, are advisable. This understanding of inferiority and insufficiency of pain relief became possible for a significant breakthrough in the field of pain science and, above all, thanks to the discovery of new transmitter mechanisms of nociception, which, as is known, are outside the "sphere of influence" of opioid analgesics and most drugs for general anesthesia (M.L.Mashford et al., 2014).

The purpose of our work was to optimize and increase the effectiveness of preoperative preparation in patients with thyroid diseases by developing a method of prolonged premedication - the complex use of anti-stress drugs (sibazone and droperidol) in the preoperative period.

Materials and research methods: The object of the study was a cohort of 156 patients diagnosed with thyroid nodules. Preoperative preparation of patients was carried out, the characteristics of anesthesia methods, drugs used, research techniques and hemodynamic parameters were analyzed. The age of the subjects ranged from 22 to 68 years, 33 men (20.7%) and 123 women (79.3%). The age distribution of patients in the study was as follows: persons aged 21-35 years were 19 people (12.5%); persons aged 36-50 years made up 83 people (53.3%); persons over 50 years old accounted for 54 people (34.2%). The diagnosis was established by

analyzing clinical and laboratory data, in particular, measuring the level of total thyroxine (T4) and triiodothyronine (T3) in the blood serum of patients.

Based on the goals and objectives of this study, the patients were divided into two groups depending on the methods of preoperative preparation (premedication) and the type of anesthesia performed. The first group (control) consisted of 76 patients who underwent standard preoperative preparation, including premedication and general intravenous anesthesia. The second group (main) consisted of 80 patients who underwent preoperative preparation with an emphasis on provoking stress for the body. The study included patients who, in addition to general intravenous and inhalation anesthesia, received long-term premedication with droperidol and sibazone, drugs known for their protective and adaptogenic properties.

The average volume of the thyroid gland in the groups did not differ significantly ($p > 0.5$). In the control group 69.3 ± 5.63 ml. studied 66.1 ± 4.54 ml. The most common concomitant pathology: in 96.7% of cases, displacement of the trachea and esophagus was noted, which was confirmed by clinical and radiological examination methods. All patients underwent subtotal resection of the thyroid gland according to O.V.Nikolaev to achieve medical eutheriosis in a planned manner, under conditions of multicomponent combined anesthesia with total myoplegia and artificial ventilation.

Prolonged premedication was a feature of the preoperative preparation of the main group of patients. Patients in this group were administered sibazone 0.2-0.5 mg/kg intramuscularly within 3 days before surgery at 8:00 p.m. In addition to the standard premedication, sibazone was administered intramuscularly 30-40 minutes before surgery at a dose of 0.3-0.5 mg/kg and droperidol 0.05-0.1 mg/kg.

It is well known that there are no special objective methods for anesthesiological examination of patients that would allow predicting their individual response to surgical trauma, anesthetics and other factors. For this reason, we have conducted comprehensive studies to improve existing methods for assessing the effectiveness of premedication, which allows us to fully assess the psycho-emotional state of patients by studying the components of premedication. Summary of the Integrative Anxiety Test used to initially screen patients:

Analysis of the anxiety present in patients was determined using the integrative anxiety test (IAT) (A.P.Bizyuk et al., 1997), which makes it possible to differentiate their psycho-emotional state. This test allows you to determine anxiety as a continuous long-term process (personal anxiety) and the level of anxiety observed at a certain moment (situational anxiety). Integrative test of anxiety Yu.LHanini and Ch.D.Spielberg modified by. It is based on the questionnaire and allows you to give a quantitative and qualitative description of the emotional state of patients.

The main advantage of this test is that it can be used by all doctors, including anesthesiologists and resuscitators. HIT consists of 15 questions that the doctor asks patients as briefly as possible.

The table shows the personal anxiety scale assigned to patients.

After patients answer all 15 questions, a total anxiety score is calculated. To do this, “+” signs are collected in each line. The sign in the line “almost never” is not taken into account in the table, the sign “+” in the line “sometimes” in the table is given one point, the sign “+” in the line “often” is given two points, the sign “+” in the line “almost always” three points are awarded. The total patient score in our example was 25 points. In order to standardize all the results obtained, the scale indicators that determine anxiety are converted into indicators of the standard scale.

Table 1.

Personal-situational anxiety scale Name/surname _____ Age ____ Date of examination __ 20

	Almost never	someti mes	often	always
I have mental stress		+		
I am in a bad mood			+	
I'm worried about the future			+	
I'm nervous			+	
I worry				+
I'm horny		+		
I feel a strange danger		+		
I get tired quickly		+		
There was a time when I didn't trust myself			+	
I try to avoid various conflicts				+
I get confused very quickly			+	
I feel helpless		+		
I don't sleep well	+			
I feel tired			+	
I'm spiritually impressionable			+	

	Score	Stanine
General indicators	25	8

Table 2

Conversion of general anxiety indicators to stanine

Stanine	Indicators
	Elders
1	6 and below
2	7-8
3	9
4	10-11
5	12-14
6	16-18
7	19-22
8	23-26
9	27 and above

As can be seen from this table, for a patient taking 25 stanine, this is equal to 8, and this indicates that he has a high level of anxiety. Based on these tables and the questionnaire, 156 patients were included in the survey.

Undoubtedly, it is very important to assess the emotional state of patients by determining the effect of drugs used for premedication. Therefore, the development of simple and objective

methods that allow anesthesiologists to determine the insufficient effect of premedication remains relevant.

The authors have proposed and put into practice several methods for determining the effect of premedication. In our study, the level of sedation after premedication was assessed using the Ramsay scale (M.A.Ramsay, 1974). An improved method of this scale was used.

Table 3

Results of assessing the effect of premedication using a modified scale (Joniev S.Sh. et al., 2023)

№	Indicators	Score
R _I	1. Patients calm down	0
	2. Anxiety	1
	3. Excitement	2
	4. Anxiety	3
	5. Timidity	4
R _{II}	1. consciousness	0
	2. Reacts to the doctor.	1
	3. The focus on the external environment has been preserved.	2
	4. The patient is calm, lethargic (lethargic).	3
	5. The patient is calm and sleepy.	4
R _{III}	1. The patient is sleepy.	0
	2. The patient is sleepy.	1
	3. Opens your eyes to tactile effects	2
	4. Quickly bends arms and legs upon impact.	3
	5. Flexion of arms and legs upon impact occurs slowly.	4
R _{IV}	1. The patient is sleepy.	2
	2. Responsive to tactile impressions	1
	3. Voice reacts to impression	0
R _V	1. The patient is sleepy.	2
	2. Slow response to tactile influences.	1
	3. The voice responds slowly to impressions	0
R _{VI}	1. The patient is sleeping.	2
	2. Does not respond to external influences	1
	3. Doesn't respond to voice	0

The total points obtained were studied using the premedication effectiveness scale individually for each patient.

To assess the state of central and peripheral hemodynamics, the following indicators were studied: systolic blood pressure (BP, mmHg), diastolic blood pressure (ADd, mmHg), heart rate (HR, beats/min) were determined in dynamics with the ARGUS TM-7 monitor from SCHILLER. Average dynamic blood pressure (SBP, mmHg) $SBP = ABP + 1/3 (ADs - ABP)$ (Koryachkin A.V. 2007). The study of hemodynamic parameters was carried out three times: upon admission, the day before surgery and after premedication.

Results and discussion:

It is known that in the preoperative period, while waiting for surgery, patients experience tension in the sympathoadrenal system and adrenal glands, an increase in heart rate, blood pressure, and peripheral resistance. Even if the underlying disease is not accompanied by significant pathological changes in the patient's body, the anticipation of surgery and anesthesia itself cause the development of a number of adaptive and protective reactions, which often turn into a pathological state. Psycho-emotional reactions, including personal and situational anxiety, can be considered as a person's personal character, but this state determines not only a person's behavior, but also the functional state of his body, the excitation of systems in it (in particular, the autonomic nervous system, blood circulation, etc.), consistency and provision in an optimized state, which can ultimately be a decisive factor in the use of adequate anesthetic management.

Adequate premedication can neutralize these changes (I.P.Nazarov, 2015). To determine the effect of premedication in patients, we used an improved scale (DGU 32003 Zhoniev S.Sh. et al., 2023).

Initially, patients were administered the Integrative Anxiety Test (ITT). Patients who took this test scored 7.39 ± 0.78 . And this applies to the group of patients with the highest emotional anxiety of category III.

All these patients were depressed, lethargic, worried about everything, their emotional background during hospitalization was weakened, the patients constantly felt an incomprehensible, difficult to predict danger, and sometimes there were signs of dysphoria. During the examination, a significant decrease was observed, although the patients' personal anxiety and restlessness remained. Below are the results of an analysis of the effect of premedication in patients. The study was conducted on 156 patients, the results are presented in tables.

Results of assessing the effect of premedication in patients in the control group using an improved scale (Zhoniev S.Sh. et al., 2023)

After IIT, patients in all groups had initial situational anxiety consistent with personal anxiety; an increase in personal anxiety led to increased situational anxiety, which could be explained by preoperative stress. After the pharmacological effect of the drugs used during standard premedication in patients reached its maximum level (30-40 minutes after premedication), when analyzing the effect of premedication, the following results were obtained 3.1. are presented in the table and in Figure 3.1.

Table 4.

Results of assessing the effect of premedication in patients in the control group using an improved scale (Joniev S.Sh. et al., 2023)

№	Indicators	Score
R _I	1. Patient conscious	11 patients (14,5%)
	2. Anxiety	8 patients (10,5%)
	3. Excitement	1 patients (1,3%)
	4. Anxiety	12 patients (15,8%)
	5. Timidity	14 patients (18,4%)
R _{II}	1. Consciousness remained (sleepy)	2 patients(2,6%)
	2. The patient is drowsy, but is in contact with the doctor.	3 patient(3,9%)
	3. The focus on the external environment has been preserved.	4 patients (5,3%)

	4. The patient is calm, lethargic (lethargic).	7 patients (9,2%)
	5. The patient is calm and sleepy.	3 patients (3,9%)
R _{III}	1. The patient is sleepy.	4 patients (5,5%)
	2. He opens his eyes to the sound	2patients (2,6%)
	3. Opens your eyes to tactile effects	1 patients (1,3%)
	4. Quickly bends arms and legs upon impact.	2 patientsa(2,6%)
	5. Flexion of arms and legs upon impact occurs slowly.	2 patients (2,6%)
R _{IV}	1. The patient is sleepy.	0 %
	2. Responsive to tactile impressions	0 %
	3. Voice reacts to impression	0 %
R _V	1. The patient is sleepy.	0%
	2. Slow response to tactile influences.	0%
	3. The voice responds slowly to impressions	0 %
R _{VI}	1. The patient is sleeping.	0 %
	2. Does not respond to external influences	0%
	3. Doesn't respond to voice	0 %

Analysis of the effect of premedication in the control group showed that 11 (14.5%) patients had P I -1 “patient satisfaction.” This situation indicates that the patient has increased anxiety in connection with the upcoming operation and that the effect of the premedication used was insufficient. Due to the fact that the situational anxiety of this category of patients upon admission to the hospital is high and the adaptive capabilities of their body are maximally mobilized, the approach of the operational process can limit this possibility and bring patients to the limit of emotional arousal. anxiety. Completed 8 (10.5%) patients with P1-2 “Anxiety”, 1 (1.3%) patients with P1-3 “Excitement”, 12 (15.8) patients with P1-4 “Worry”, P1- 5 “Patients with shyness.” up to 14 (18.4%). This can be explained by the patient's constant emotional discomfort, fear and anxiety.

RII-1 “patients with preserved mood (drowsiness) 2 (26%), RII-2 “patient sleepy, but communicates with the doctor 3 (3.9%), patients RII-3 “maintained orientation to the external environment” 4 (5 ,3%), patients RII -4 “patients are calm, lethargic” 7 (9.2%), patients RII -2 “patients are calm, drowsy” 3 (3.9%) are organized. Emotional discomfort in these patients is nonspecific and develops as a result of general anxiety.

But in the control group there was also a group of patients with a positive effect from premedication. RII -1 “patients sleepy” 4 (5.5%), RII -2 “patients sleepy, opens eyes to sound” 2 (2.6%), P RII -3 “opens eyes to tactile influence 1 (1, 3 %), patients with RII-4 “rapid bending of arms and legs to strike” 2 (2.6%) and patients with PIII-5 “slow bending of arms and legs to strike” 2 (2.6%) were organized. This indicates that the emotional and adaptive state of patients is individual.

Our studies showed that the initial parameters of central hemodynamics in patients in both groups did not differ significantly from each other (Table 5). Carrying out stage-by-stage monitoring of changes in central hemodynamics, we found that in patients in the control group, already at the preoperative stage, before induction of anesthesia, there was a significant increase in blood pressure, blood pressure, blood pressure and heart rate ($p < 0.05$) compared with the initial values. Thus, after premedication, patients in the control group showed a significant increase in blood pressure by 4.8% ($p < 0.001$), blood pressure by 6.9% ($p < 0.001$), and SBP by 5.5% ($p < 0.01$), heart rate by 4.4% ($p < 0.05$) relative to the initial values (Table 6.). The number of heart contractions and mean arterial pressure were consistently elevated during the three days before surgery and, despite traditional antihypertensive therapy, no downward trend was observed. It is also noteworthy that despite the traditional premedication, the number of heart contractions was increased compared to previous days.

Table 5.

ABP, ABP, SBP, heart rate in patients of the control group at the main stages of the perioperative period ($M \pm m, p$), ($n=76$)

Research stages	Control group			
	Blood pressure, mmHg	Blood pressure, mmHg	SBP, mmHg.	Heart rate beats/min
1. On admission	128,3 ± 1,66	78,6 ± 1,03	95,6 ± 1,02	79,8 ± 1,03
2. The day before surgery	130,9 ± 1,34 $p > 0,05$ $p1 > 0,05$	83,1 ± 0,94 $p < 0,05$ $p1 > 0,05$	99,1 ± 1,03 $p < 0,05$ $p1 > 0,1$	82,5 ± 0,81 $p < 0,05$ $p1 > 0,5$
5. Premedication	134,5 ± 1,35 $p < 0,001$ $p1 < 0,05$	84,1 ± 0,86 $p < 0,001$ $p1 > 0,2$	100,9 ± 0,98 $p < 0,01$ $p1 > 0,1$	83,3 ± 0,76 $p < 0,05$ $p1 > 0,3$

Note: p - compared to the first stage p1 - compared to the previous stage

Noteworthy is the fact that in 4 patients in the control group with initial arterial hypertension, planned surgical intervention had to be canceled due to high blood pressure values (above 180/100 mmHg) on the day of surgery, despite constant use of antihypertensive drugs in the preoperative period, which in our opinion is certainly associated with the psycho-emotional reaction of the patient to the anticipation of surgery and anesthesia.

The above data indicate that patients in the control group observed significant changes in blood pressure and heart rate, which are a consequence of the impact on the patient's body of stress and other unfavorable factors acting on the patient's body in the perioperative period. These disorders are not completely blocked by premedication, anesthesia, or infusion therapy and are intensified under the influence of surgical intervention. Analysis of central hemodynamic parameters in patients of the study group showed that in the preoperative period, in the first three stages of the study (upon admission, 1 day before surgery, premedication), against the background of the use of sibazon and droperidol, there was a systematic decrease in blood pressure, blood pressure, blood pressure, heart rate according to compared with the initial indicators, but within the physiological norm. One day before surgery, a significant decrease in blood pressure was recorded by 4.2% ($p < 0.005$), blood pressure by 4.3% ($p < 0.01$), SBP by 4.2% ($p < 0.01$), heart rate by 3.9%. ($p < 0.05$) compared to the first stage. After premedication, blood pressure was lower than

the initial values by 3.4% ($p < 0.01$), blood pressure by 5.3% ($p < 0.001$), SBP by 4.5% ($p < 0.001$), heart rate by 4.6% ($p < 0.05$). These changes in central hemodynamic parameters are positive and are due to the stabilization of the neurovegetative system against the background of the use of sibazon and droperidol, since admission to the hospital itself is already a stressful situation for most patients (Table 6.).

Table 6.

ABP, ABP, SBP, heart rate in patients of the study group at the main stages of the perioperative period ($M \pm m, p$), ($n=80$)

Research stages	Study group			
	Blood pressure, mmHg	Blood pressure, mmHg	SBP, mmHg	Heart rate beats/min
1. On admission	130,4 ± 1,26 $p_2 > 0,1$	78,7 ± 0,82 $p_2 > 0,5$	95,9 ± 0,93 $p_2 > 0,5$	79,4 ± 1,06 $p_2 > 0,5$
2. 1 day before surgery	127,3 ± 1,18 $p > 0,05$ $p_2 > 0,5$	77,2 ± 0,61 $p > 0,05$ $p_2 > 0,1$	93,9 ± 0,74 $p > 0,05$ $p_2 > 0,4$	78,0 ± 0,82 $p > 0,05$ $p_2 < 0,01$
3. Premedication	126,0 ± 0,75 $p < 0,01$ $p_1 > 0,5$ $p_2 < 0,001$	74,7 ± 0,52 $p < 0,001$ $p_1 > 0,5$ $p_2 < 0,001$	91,8 ± 0,51 $p < 0,001$ $p_1 > 0,5$ $p_2 < 0,001$	75,9 ± 0,58 $p < 0,05$ $p_1 > 0,2$ $p_2 < 0,001$

Note: p - compared to the first stage

p1 - compared to the previous stage

p2 - compared to the same stage in the control group

When analyzing the level of preoperative sedation, it was revealed that in 80% of patients in the control group the effect of premedication was unsatisfactory, it was expressed in emotional stress, anxiety, anxiety, and fear of patients before surgery. In the study group, the level of preoperative sedation was adequate in 100% of cases. The use of sibazone and droperidol for three days before surgery and the inclusion of these drugs as components of premedication made it possible to enhance the sedative effect of premedication, stabilize the psycho-emotional background of patients, and prevent adverse reactions from the cardiovascular system.

Based on the results of the study, it was established that the proposed methods of stress protective and adaptogenic protection with sibazone and droperidol help improve central and peripheral hemodynamics and are effective in preventing the hyperergic reaction of the pituitary gland, adrenal glands and pancreas. The use of sibazone and droperidol made it possible to enhance the sedative effect of premedication, stabilize the psycho-emotional background of patients, and prevent adverse reactions from the cardiovascular system in the preoperative period. The proposed method of stress-protective and adaptogenic therapy - prolonged premedication - (with sibazone and droperidol) made it possible to avoid episodes of hypertension and tachycardia during laryngoscopy and intubation at the traumatic stages of the operation.

Thus, based on the conducted research, the following conclusions can be drawn:

1. In the perioperative period, patients undergoing surgery for thyroid diseases experience undesirable hemodynamic, autonomic and neuroendocrine reactions of the body, which negatively affect the course of the perioperative period and anesthesia.

2. The use of sibazone and droperidol in patients undergoing surgery for thyroid diseases helps reduce emotional stress, anxiety, and restlessness, providing an adequate level of preoperative sedation. Allows a differentiated approach to the administration of hypnotics and narcotic analgesics, minimizing their negative effects and doses.

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