

The methods of management of subconscious for critical patients**T.Kurcikidze, Z.Kheladze (Tbilisi, Georgia)**

Management of critical patient's sub-conscious is substantiated. In these patients for the management of sub-conscious use of Midazolam is allocated. It has sedative, anti-convulsive and analgesic effect. Clinical findings include 27 adult critical patients. During the use of Midazolam patients were lying in bed passively. They showed certain elements of consciousness after contact with them, but they did not express neither pain nor worry. They had indifferent attitude towards their condition. Effect of sub-conscious management by Midazolam was also studied in an experiment conducted on rats.

Report is displayed, that during the need of sedation in critical patients Midazolam can be used effectively.

Key words: management, subconscious, critical patient.

Actuality:

Sub-consciousness is the mode of life which occurs below the level of our conscious awareness and controls our bodily functions and growth. Sub-consciousness is managed by the ventro-medial region of frontal cortex and is structured into will, desire, mind and feeling/emotion.

The sub-consciousness is the dominion of all the frame of reference which is beyond the conscious organization. Its first function is to contend with conditions of stress and to structure subjective tension reducing responses to all vital circumstances. Here are seated all the primary human instincts, which act upon and are themselves acted upon by the sum total of those experiences which, directly or indirectly, have a bearing of the security and the continued survival of the individual. Sub-consciousness in the system of mind includes the sum total of psychodynamic manifestations related to all the pregenital stages in the development of the individual, up to the point it even includes subconscious material from the genital period. All the subconscious references are born with the wide range of stress experiences building on the intensity of the stress, responses and the counter responses to them.

Sub-consciousness in the system of body.

The arrangement of sub-consciousness in the system of body, manifests itself particularly in the form of those unlearned programs as the instincts, these are singular, accomplishments of primeval

highly acute and universal sensitivities to the condition of existence, inter woven with the organisms natural biological and physical recourses. The intensity of these sensations and the caliber of bio and physical elements will determine the exact behavior of the instincts their reactions or responses to stress.

In critical medical care there are lots of accidents when conscious patient feels his (her) life under danger. Patient is monitoring how his treatment is going on and feels emotionally depressed and uncomfortable. The best way to overcome such problem is subconscious management, which depends on the received drug and its doses.

It is important to achieve the degree when patient feels comfortable and free of fear and pain. In order to fulfill above mentioned requirements, the Midazolam could be considered as the safe and effective sedative agent.

Methodes:

The Midazolam receptors cause an increase in the susceptibility of the cell to the inhibitory neurotransmitter γ -amino-butyric acid (GABA). The stimulation of these receptors is responsible for the sedative and anticonvulsant properties of the Midazolam.

The Midazolam and the GABA receptors are coupled to a chloride ion channel. Flow of chloride ions through this channel from the extracellular fluid to the intracellular causes the charge within the cell to become more negative, making the cell refractory to stimulation.

The aim of the first part of the research was intend for studying of impact of Midazolam on emotional behavior and movement activity. Research was done on white, male 250 - 300 gr. rats. Assessment of motor activity and sedative effects is provided by the scale of M. Shymoia (table 1).

Behavior of animals (M.Shymoia)

point	Behavior
0	Normal
1	Imbalance of back extremities (weak ataxia)
2	Ataxia
3	Loss of postural reflexes (strong ataxia)
4	Immobilization
5	Pain response not detected (anesthesia)

Emotional behavior of the animals was studied by the avoidance method that is based on rats' inclination to stay away from the light. Experimental camera consists of two sections: 1. lighted

section (big one) and 2. Dark section (smaller one), which are connected to each other by 5 to 6 cm hall. The rat which is placed in the lighted section quickly moves to the dark, where he receives electrical impulses from the metal floor.

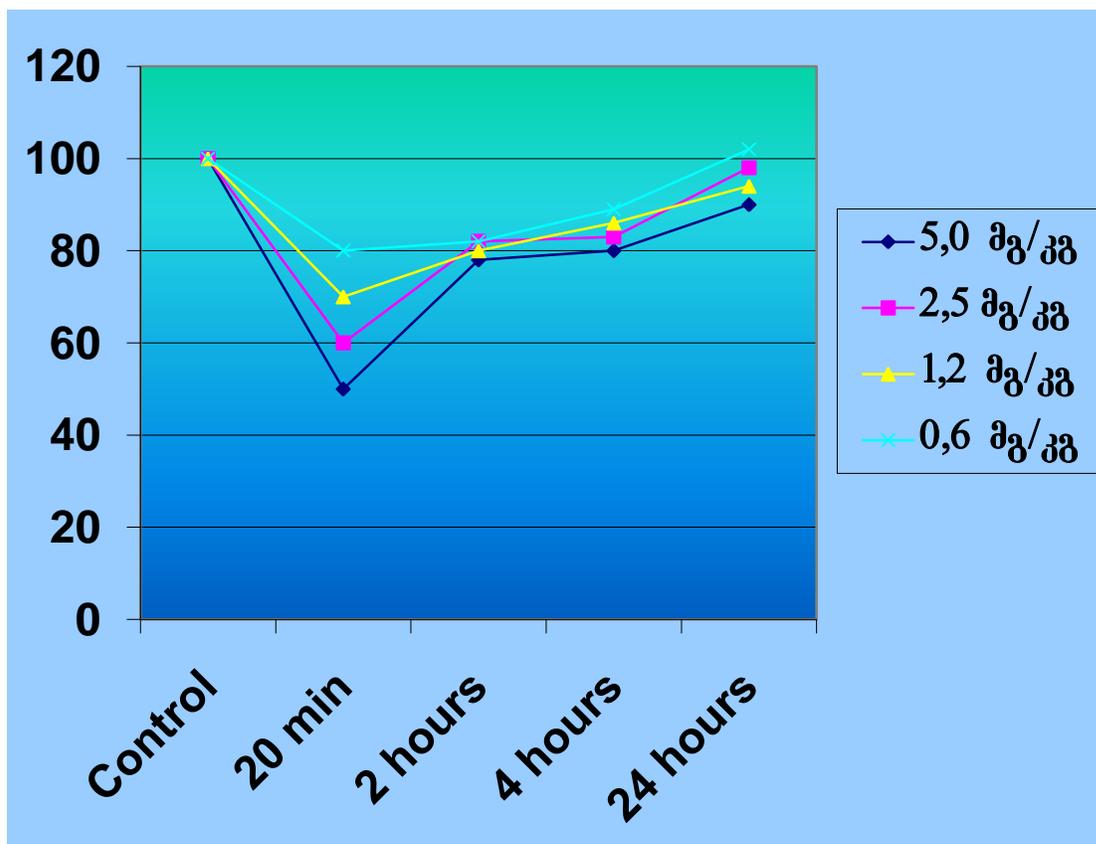
This is the way, the emotional reaction of fear forms. Rat immediately returns to the lighted room and remains there. Maintenance of the fear reaction is checked in 20 min, 2, 4 and 24 hours. If the rat placed in the illuminated section doesn't go to a dark room he still feels fear. In realization of passive avoidance there were recorded numbers of defecations and urinations, grooming and vertically standing cases per unit time. After using Midazolam, rats were placed into the lighted section and test of passive avoidance was done. In 20 minutes they moved into the dark section, but 24 hours after the test only one out of 12 entered the dark section, so conclusion is, that in the first place it was anxiety reduction, but feeling of fear stays in the mind and after Midazolam completely cleared off, the CNS structures responsible on emotional reaction of the fear returned in the previous stage.

In this part of experiment, it was found out, that small doses of Midazolam (0.6mg/kg) don't cause any sedative effect on the rats. Use of midazolam in the 1.2mg/kg doses in 5 cases from 6 caused slight ataxia, 2.5mg/kg - slight ataxia in one case and medium in 5; 5mg/kg-severe ataxia in all cases. Although there were changes of behavior, movement disorders were minimal. Rats from the second group (receiving midazolam in doses of 5mg/kg) were also placed in the dark section and received painful electrical frustration. Afterwards only 3 out of 12 returned into the lighted section and 9 remained in the dark section during 20min, 2, 4 and 24 hours. So, Midazolam reduced not only anxiety level, but also depressed pain receptors activity.

The aim of the second part of experimental research was to determine the effect of Midazolam on the brain blood circulation. Midazolam was given to the rats in the doses of 0.6; 1.2; 2.4 and 5mg/kg. The experiment was performed by penetrating measuring electrode in the cortex of the rats' brain and electrode for compare under the skin at the scalp. Blood flow level was measured:

1. before receiving Midazolam
2. after 20 min, 2, 4 and 24 hours of receiving Midazolam. (table 2)

(Table 2) Changes of local blood flow in the brain of rats



Local blood level in the cortex of the brain was studied by the method of “Molecular Peroxide by Clirence”. In the Clinical part of the research 12 patients were observed in order for sub-conscious management Critical Condition in above patients was caused polytraumas, severe cerebral traumas, sepses, etc. Midazolam was administered in doses of 0.2-0.3 mg/kg/hr, intravenously during 3-12 days.

This part of the experiment showed, that blood flow changes depends on the doses of Midazolam: minimal dose (0.6mg/kg) - minimal changes; maximum dose (5mg/kg) maximal changes, but in every case blood flow reduction took place, maximum reduction - in 20 min, partial recovery - in 2 hours and whole recovery in 24 hours time.

During this time arterial blood pressure remained unchanged. Study of impact of Midazolam on Local cerebral blood circulation showed that the blood flow in the brain changed with the dosage, though, in all cases there was indicated decrease of local blood flow. As for minimal (0.6mg/kg) also for maximal (5,0 mg/kg) doses of Midazolam, maximal decrease of blood flow occurred on 20th minute after administration, what commenced restoration after 2 hours and in 24 hours returned to the original level. It has to be noted that blood pressure staid unchanged.

From the experimental studies we can suspect that Midazolam affects behavior and reduce blood flow level of the brain at the same time, what makes sub-consciousness and all the unwanted feeling associated with it and possible to be managed.

While sedation with Midazolam the patient should lie, it is desirable to select correct dosage of sedative agent individually, taking into consideration age, weight and general physiological status, character and duration of intended treatment. Suggested doses of Midazolam are: 0, 2-0, 3 mg/kg/h (for adult patients), 0, 2-0, 1 mg/kg/h (for elderly patients) and 0, 5-0, 1 mg/kg/h (for child patients). Permanent infusion of the above dose, induced anxiety level reduction and optimistic feeling of the patients. No complications or unwanted side effects took place.

In the third part of our research Midazolam was compared with other sedative agents, such as Diazepam. Two groups of patients had been selected, first group were we used just midazolam and second group were Diazepam was used to manage sub-consciousness. In this group effect of Diazepam was monitored on 27 patients, among them 17 women, 10 - man. 13 case was under the age of 60, and 14 older than 60. In 10 case critical situations was associated with ischemic stroke, 6 cases with trauma, 4 case severe sepsis, 4 with myocardial infarction and 3 cases with bronchopneumonia. For managing sub-consciousness, Diazepam 0.5-1.0 mg/kg in an hour was used by permanent intravenous infusion. Above mentioned medicament was infused while par-enteral feeding, antibacterial therapy and other standard medical manipulation. (Zv. Kheladze 2002). Received responses showed that while using Midazolam it is easier to manage sub-consciousness, than while using Diazepam. Also, it is remarkable that after treating with midazolam patients seemed more easily recovered from trance situation than after using Diazepam. As for the memory, both form of it (short and long) was stored during the treatment process after using midazolam, but in few days later, it was stored after using Diazepam.

Conclusion:

We can conclude that for the critical situations midazolam is an effective and desired sedative agent, with an excellent property of subconscious independent management.

ქვეცნობიერის მართვის მეთოდი კრიტიკული პაციენტებისათვის თ.ქურციკიძე, ზ.ხელაძე (თბილისი, საქართველო)

დასაბუთებულია ქვეცნობიერის მართვის აუცილებლობა კრიტიკულ პაციენტებში. ამ კატეგორიის პაციენტებში ქვეცნობიერის სამართავად მოწოდებულია მიდაზოლამის გამოყენება, რომელსაც აქვს სედაციური, ანტიკონვულსიური და ანალგეზიური ეფექტი. კლინიკური მასალა მოიცავს ზრდასრული ასაკის 27 კრიტიკულ პაციენტს. მისი გამოყენების დროს ავადმყოფები საწოლში პასიურ მდგომარეობაში იწვნენ. ცნობიერების ელემენტებს ამჟღავნებდნენ მხოლოდ მათთან კონტაქტისას, თუმცა არ გამოხატავდნენ არც ტკივილს და არც შეშფოთებას. ინდიფერენტული განწყობა ჰქონდათ თავიანთი მდგომარეობის მიმართ. მიდაზოლამის მიერ ქვეცნობიერის მართვის ეფექტი შესწავლილი იყო აგრეთვე ექსპერიმენტში თაგვებზე.

გამოტანილია დასკვნა კრიტიკულ პაციენტებში სედაციის საჭიროების დროს მიდაზოლამის გამოყენების ეფექტურობის შესახებ.

გასაღები სიტყვები: მენეჯმენტი, ქვეცნობიერი, კრიტიკული პაციენტი.