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Forensic Description Of Cases Of Noletal Asphyxia

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ABSTRACT

This article discusses the forensic description of cases of Noletal asphyxia. Expertise materials on postasphystic cases in 2017-2020 in three regions of the country were studied. Incomplete asphyxia during this period accounted for 0.31% of the total number of forensic medical examinations of survivors, and the ratio of examinations for nonlethal and lethal asphyxia was 1: 6.6%. Non-lethal asphyxia was more often observed in men, in persons aged 19-39 years, after an attempt at self-improvement, in the morning and afternoon hours. The duration of asphyxia, loss of consciousness, and the severity of signs of brain activity were interrelated. The danger to the life of the victims arose with the development of a severe coma. Based on the characteristics of such incidents, it was emphasized that when conducting forensic medical examinations, medical documents are the main source of objective data.

KEYWORDS

Postasphic condition, forensic medical assessment, asphyxia, examinations of survivors, ratio of examinations, nonlethal asphyxia, lethal asphyxia, self-improvement, consciousness.

INTRODUCTION

Deterioration of health and death as a result of lack of oxygen occupy a significant place among the objects of forensic examination. Consequently, the study of hypoxic conditions is one of the current problems in the science and practice of forensic medicine (1,8). In addition to the large number of studies on various aspects of lethal asphyxia in the specialized literature, the clinical features, diagnosis, and forensic evaluation of

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incomplete asphyxia cases have not been adequately covered (3,4). To date, the practice of forensic medicine has not developed clear criteria for a reasonable assessment of the severity of bodily injuries in post-psychiatric cases(2). The fact that most of the post-psychiatric cases are of great social significance and are mainly the result of attempted suicides committed by members of the able-bodied strata of the population further exacerbates the problem (6,7). It should be noted that post-psychiatric cases on the materials of forensic medical examinations in Uzbekistan have not been studied.

THE PURPOSE OF THE STUDY

Is an analysis of the forensic aspects of cases of noletal asphyxia on the basis of forensic materials.

RESEARCH MATERIALS AND METHODS

The object of examination was the materials of forensic medical examination of living persons on incomplete asphyxia in 2017-2020 in three regions of Uzbekistan (Andijan, Fergana regions and the city of Tashkent). During this period, a total of 456 forensic medical examinations of post-psychiatric cases in living persons were conducted in three regions of the country. In all cases, the details of the incident, medical documents on inpatient and outpatient treatment of victims and anamnestic data collected from them, the results of expert examinations and consultations of clinicians in various fields were studied in detail. For each case, special cards were filled out with about 30 characters, such as the sex, age, place and time of the incident, the type of exposure caused by the hypoxic condition, its characteristics and duration, the identified injuries and the criteria for forensic evaluation of their severity. Each character on the card was digitized and a database was created for statistical processing. The results were then presented in the form of tables, diagrams, and graphs.

RESEARCH RESULTS

According to the statistics of forensic medical examination institutions, incomplete asphyxia cases in the mentioned regions in the years of analysis accounted for an average of 0.31% of the total examination of living persons. The ratio of post-psychiatric cases and deaths from mechanical asphyxia in living individuals averaged 1: 6.6. This figure varied in the analysis years from 1: 5.2 to 1: 8.5.

Among the victims, men made up the majority (57.5%). In terms of age groups, about two-thirds of the observations were in the 19-29 (37.9%) and 30-39 (26.9%) age groups. Children and adolescents accounted for 13.0% of the total follow-up. At the same time, the distribution of different sexes by age group was different. In particular, the proportion of men under the age of 15 and in the group of victims aged 50 and over was much higher. In these groups, men accounted for 90.5% and 86.8%, respectively. About half of the women in the different age groups were 19-29 years old (Figure 1).

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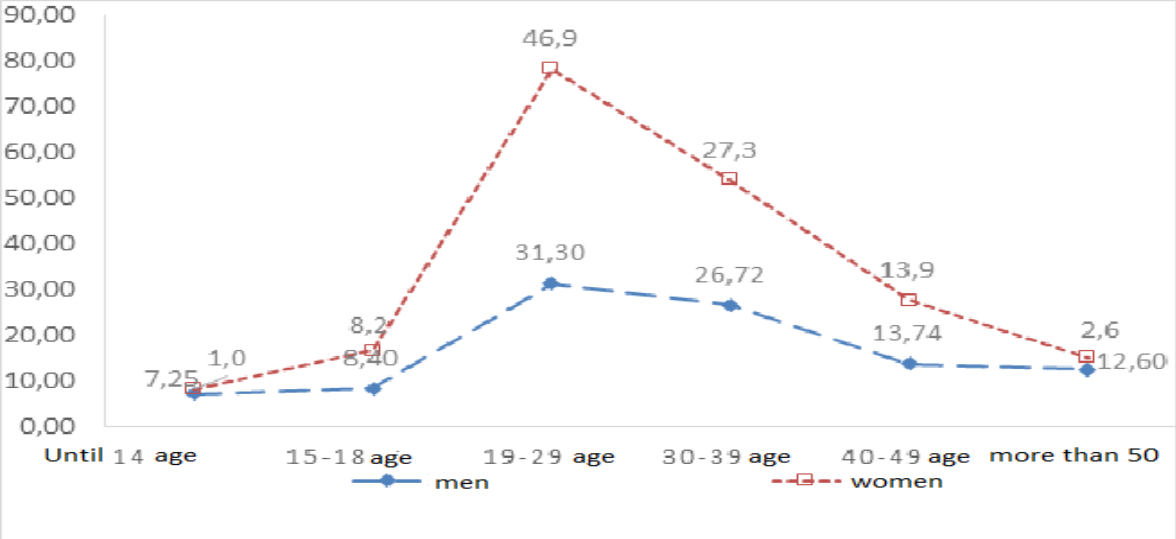

Figure 1. Distribution of different sexes by age groups.

According to the details of the incident cited in the case materials, most of them occurred at home (88.4%), mostly in the morning and during the day (between 07 and 18 hours) (60.8%). All postasphytic cases were caused by strangulation asphyxia. Attempts to hang themselves were detected in 84.0% of cases, and manual suffocation in 15.6%. In 2 cases (0.44%) suffocation was observed. 76.0% of those who were suffocated by hand and all those who were suffocated by hand were between the ages of 19-39. However, no significant differences were found between members of the opposite sex regarding the type of asphyxia effect. During the examination, no examination was performed for postoperative condition associated with obstruction, compression, or postural asphyxia.

In all forensic examinations of cases of hanging or strangulation, the type of strap, its material and the location of the victim's neck are important. According to the results of the analysis, strangulation was found in the neck of the victims in 80.5% of the total observations. In 76.5% of these cases, the neck is located in the upper third of the neck, in 20.7% - in the middle third, and in 2.8% - in the lower third. In most cases, a typical hang (without a body base) (97.8%) was observed, and the sciatic node was located in the back of the neck (95.2%) in the victims. In 67.3% of cases of strangulation with a surface, the surface is semi-rigid, in 27.6% - soft, in 5.1% - made of hard material.

Naturally, the clinical signs of postasphytic cases depend on the duration of the asphyxiating effect. Therefore, during the analysis, data on the duration of asphyxia from various sources (medical records, victims and their relatives) were collected. According to the results of the analysis, in 20.0% of cases the effect was up to 30 seconds, in 22.8% - 31-60 seconds. In 57.2% of the observations, the

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strangulation effect lasted more than one minute. The most lasting effect was around 4-5 minutes.

In 93.0% of the total follow-ups, post-accident medical care was sought and 84.2% of the victims were treated in an inpatient setting. In 62.3% of cases, the duration of treatment was 2-7 days, in 26.0% this figure was 8 days or longer **(Figure 2).**

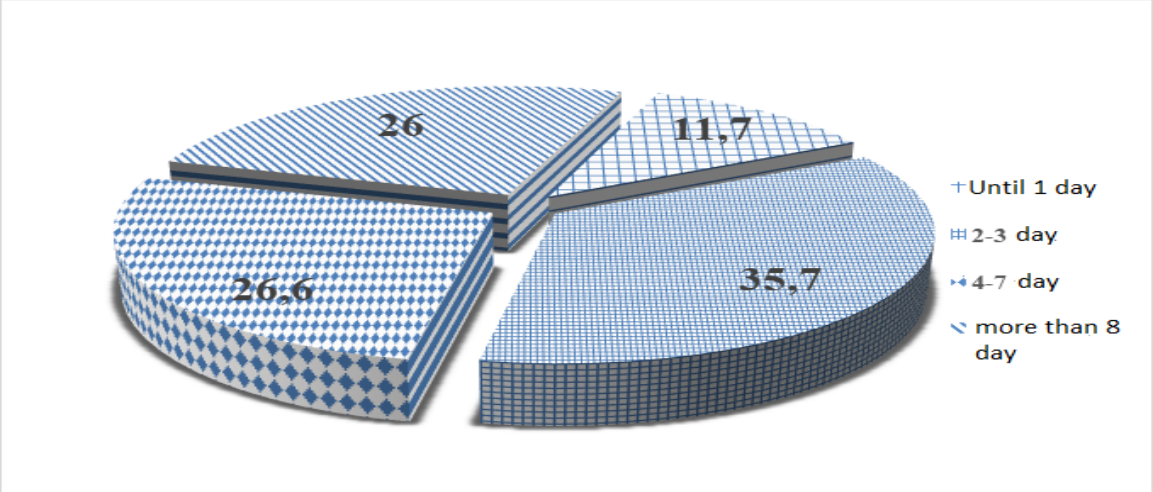

Figure 2. Periods of inpatient treatment of victims

There are specific difficulties in conducting forensic examination of living persons on incomplete asphyxia, one of the main of which is the selection of the right criteria for determining the severity of bodily injuries. According to the current "Rules for forensic examination of the severity of bodily injuries", various manifestations of mechanical asphyxia are assessed as severe bodily injury only on the basis of life-threatening criteria, when they lead to life-threatening conditions. (2). Such a threat can occur mainly as a result of the development of grade II and III coma, in some cases the development of severe acute cardiovascular disease, respiratory failure, in rare cases, severe liver, kidney failure. In the absence of life-threatening symptoms, the criteria for determining the severity of injuries are the duration of the disorder or the degree of permanent loss of general ability to work.

According to the results of the analysis, the risk of life-threatening criteria was used in 51.3% of cases to assess the severity of bodily injuries in post-psychiatric cases. In the remaining cases, the experts used the sign of the duration of the health disorder.

According to forensic materials, the threat to life in cases of noletal asphyxia was mainly associated with impaired brain function. Therefore, according to medical records and anamnestic data, other changes related to impaired consciousness and brain activity were carefully studied. According to the analysis, 75.6% of the victims lost consciousness for

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various periods after asphyxia. Detailed information on the duration of loss of consciousness Shown in Table 1.

Data on the duration of fainting

Table 1

№	Unconscious	Abs. in terms of numbers	%
1	Unconscious	111	24,4
2	Until 60 hours	6	1,3
3	Until 30 hours	49	10,7
4	Until 1 hours	31	6,8
5	Until 6 hours	54	11,9
6	Until 12 hours	44	9,6
7	Until 24 hours	28	6,2
8	Until 3 days	95	20,8
9	Until 5 days	21	4,6
10	Until 5 more than a day	17	3,7
Total		**456**	**100%**

There was a direct correlation between the asphyxia effect and the duration of loss of consciousness (Figure 3). Consequently, in 47.2% of cases where the effect lasted less than a minute, the victims did not lose consciousness at all. In contrast, in 93.2% of those who lost consciousness for more than 6 hours, the asphyxiating effect was longer than one minute (Figure 3).

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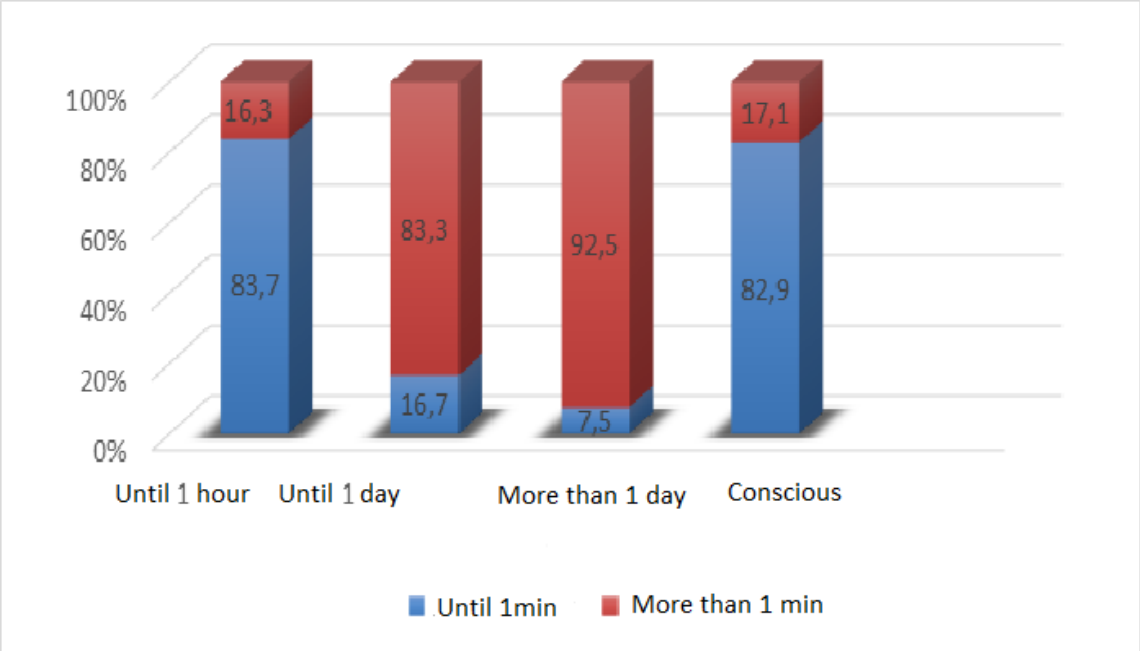

Picture 3. Asphytic effect and duration of pleasant loss

There was no significant difference in the duration of unconsciousness by gender and age group. In the cross-section of asphyxia, 23.8% of cases of hanging were unconscious, and 16.1% of the victim was unconscious for up to an hour. In manual suffocation, these figures were 25.4% and 32.8%, respectively. Both victims did not lose consciousness as a result of suffocation.

A correlation was found between the duration of loss of consciousness and the duration of medical attention and treatment. In particular, more than two-thirds (68.8%) of those who did not seek medical attention did not lose consciousness at all after strangulation, and 28.2% lost consciousness within 60 minutes. In victims who sought medical attention but were not subsequently treated, these rates were 55% and 45%, respectively. (Figure 4) At the same time, a similar correlation was found between the duration of treatment and the duration of loss of consciousness. (Figure 5).

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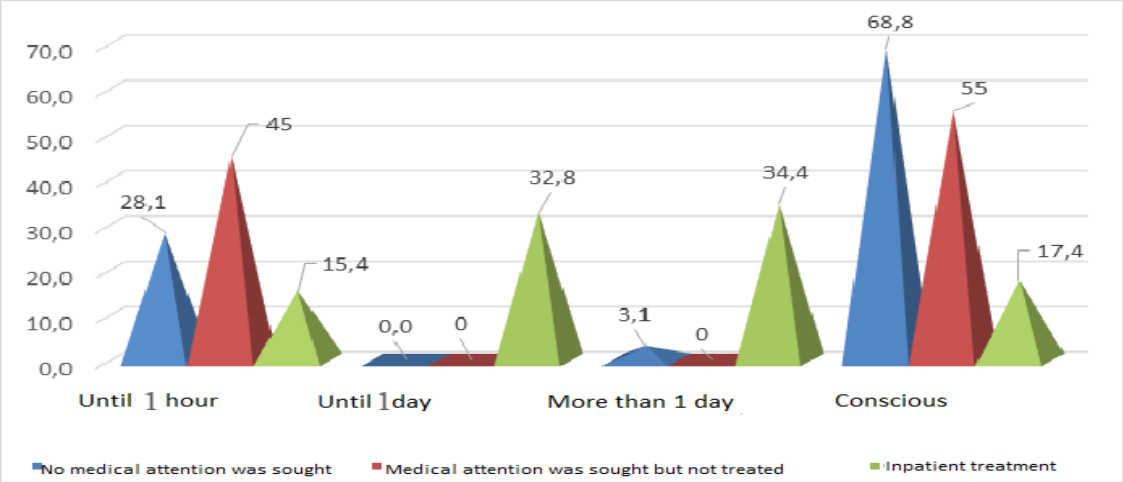

Figure 4. Duration of loss of consciousness and seeking medical attention.

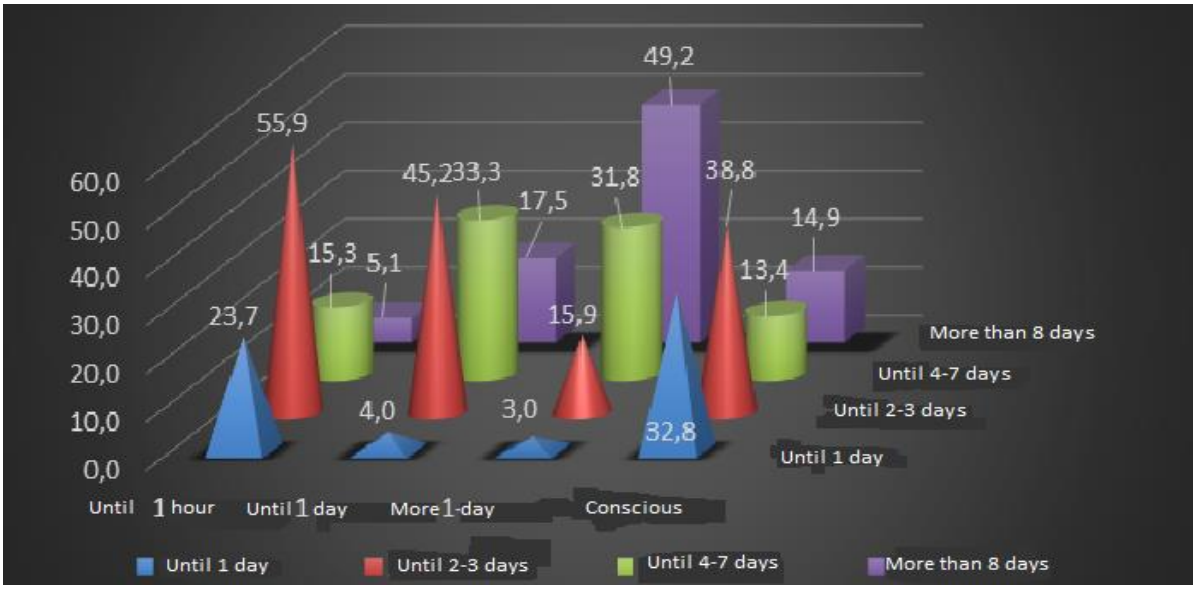

Figure 5. Correlation between loss of consciousness and duration of treatment

One of the important symptoms that occurs as a result of impaired brain function in postasphytic conditions is the observation of various seizures in victims. According to medical records and anamnestic data, in 43.4% of cases tonic, in 14.7% - tonic-clonic seizures.

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Observations of this sign in representatives of different sexes were not reliably differentiated. Only in children and adolescents tonic-clonic seizures occurred in slightly more cases (62.7%). In the asphyxia-type cross-section, 76.1% of those who were suffocated by hand had no convulsions at all in any of the suffocated individuals. 51.3% of inpatients treated with tonic, 17.2% with tonic-clonic seizures. Convulsions were detected in only 5.0% of those who sought medical attention but were not treated. In 48.2% of the 191 cases in which no seizures were observed, the victims did not lose consciousness after the

incident, and in 38.2% the unconsciousness lasted up to an hour. In contrast, in 233 (87.9%)

of the 265 cases of seizures, the victims lost consciousness for a period of 1 hour to several days (Figure 6).

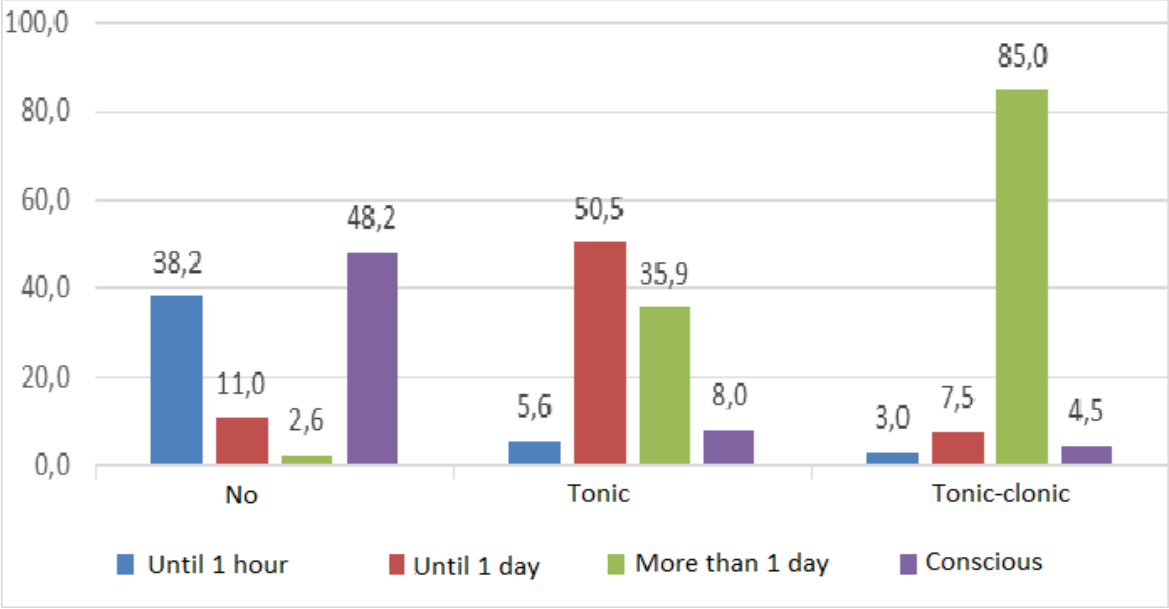

Figure 6. Duration of unconsciousneCss and relationship of convulsions

According to medical records and expert examination, subconjunctival ecchymoses of various sizes were detected in 55.7% of victims. Also, in 55.7% of cases, mostly retrograde amnesia was observed in the victims. It should be noted that 92.1% of the victims of convulsions had bleeding into the mucous membrane of the eye and retrograde amnesia.

According to the examination, 90.5% of victims of incomplete asphyxia have various degrees of brain dysfunction (Table 2).

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The state of consciousness in the victims after the incident

Table 2.

№	State of consciousness	Abs. in terms of numbers	%
1	III degree coma	107	23,5
2	II degree coma	125	27,4
3	I degree coma	24	5,3
4	Sopor	46	10,1
5	Stuttering	106	23,2
6	Unchanged	48	10,5
Total		456	100%

Deep and terminal (grade II and III) coma that posed a threat to human life was recorded in 50.9%, and bodily injuries were assessed as severe by the same criterion. In children and adolescents, this figure was slightly higher (57.6%).

DISCUSSION OF INSPECTION RESULTS

In three regions of the country, incomplete asphyxia cases in 2017-2020 accounted for 0.31% of total forensic medical examinations of living persons, and in different years this figure ranged from 0.27% to 0.39%. The figures also differed across regions. The ratio of nolethal and fatal asphyxia examinations during this period averaged 1: 6.6. In this regard, the differences in indicators by years and regions can be explained, among other reasons, by the attempts of citizens to hide such incidents, not to vote, and ultimately their low level of coverage by forensic medicine.

According to forensic materials, noletal asphyxia was observed in more men, two-thirds of the victims were between the ages of 19-39. At the same time, some features were identified in the share of different sexes in the cross-section of age groups.

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According to the details of the incident, in all cases the postasphytic condition occurred as a result of strangulation of the neck. 84.0% of the observations were related to attempted suicide by hanging. Most of these incidents occurred at home, mostly in the morning and during the day. These results are consistent with data from other researchers (1,4).

Most of the victims sought medical attention and most were treated in an inpatient setting. According to the results of the analysis, there was a direct correlation between the asphyxia effect and the duration of loss of consciousness. At present, no significant differences in the duration of loss of consciousness in representatives of different genders and age groups have been identified.

In post-psychiatric cases, the majority of victims seek forensic examination after a certain period of time when their health condition improves. Pathological signs, which appear as a result of asphyxia before the expert examination, change the initial state of bodily injuries, and sometimes may disappear altogether. Therefore, often in conducting such examinations, medical documents remain the only source of objective information necessary for forensic assessment of the situation. Taking into account this situation, the duration of unconsciousness in the analysis, clinical signs of brain dysfunction, injuries identified in the victims, the data were obtained mainly from medical records.

According to the results of the analysis, convulsions were observed in 58% of the victims, and in children and adolescents, as well as in cases after hanging, this figure was slightly higher than for manual suffocation. A direct correlation was found between loss of consciousness, its duration, and the observation of convulsions. Indeed, subconjunctival ecchymoses and retrograde amnesia have been reported in the majority of cases of convulsions. In 90.5% of postasphytic cases, symptoms of cerebral dysfunction were observed, including 56.2% of coma of various degrees. According to the forensic examination, the threat to the lives of the victims was mainly (99.1%) associated with grade II and III coma. In only two cases was the life-threatening result of acute cardiovascular failure. Similar results have been obtained by other researchers (5,6).

CONCLUSION

Thus, based on the analysis of forensic materials in post-psychiatric cases, the following conclusions can be drawn:

1. Incomplete asphyxia cases during the years of analysis accounted for 0.31% of the total forensic medical examination of survivors. The ratio of cases of noletal and lethal asphyxia averaged 1: 6.6. These figures varied across regions and years.
2. Cases of noletal asphyxia are more common in men, 19-39 years of age, mainly in the morning and during the day after attempting to hang themselves.
3. Due to the nature of these events, medical documents serve as the main source of objective information in conducting such forensic examinations.
4. In post-psychiatric cases, the threat to the life of the victim is mainly associated with the development of severe coma, and in

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these cases, the life-threatening criterion is used to determine the severity of bodily injuries.

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