

## Features of Postasphytic Conditions In Children And Adolescents

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### ABSTRACT

The results of a comparative analysis of cases of incomplete asphyxia in children, adolescents and adults based on the materials of forensic medical examinations conducted in three regions of Uzbekistan in 2017-2020 are presented. It was found that children and adolescents accounted for 12.9% of all cases of post-asphytic conditions and in most cases they were associated with an attempted suicide by hanging. Among them, males prevailed significantly than among adults. The unconscious state in children and adolescents was more prolonged and various convulsions were observed more often than in adults. The incidence of deep coma as a result of impaired brain function is also high in them.

**KEYWORDS:** hypoxic conditions, tables, graphs, diagrams, children and adolescents, post-asphytic state, asphytic.

### ARTICLE DETAILS

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### INTRODUCTION

Disorder of health and death from acute hypoxic conditions occupies a special place in forensic medical practice.

The specialized literature is dominated by works devoted to the issues of postmortem diagnosis of these conditions (1). At the same time, many aspects of interrupted asphyxia remain neglected (5, 6).

Being infrequent in the structure of forensic medical examination of living persons, nevertheless, post-asphytic states present significant difficulties in matters of forensic medical assessment (3). At the same time, a particular difficulty is associated with a reasonable choice of the qualification criterion in determining the severity of bodily INJURY (2, 4).

### RESEARCH OBJECTIVE

Analysis of epidemiological and forensic medical features of incomplete asphyxia in children and adolescents.

### MATERIAL AND RESEARCH METHODS:

The object of the research was the materials of forensic medical examinations of living persons in cases of interrupted asphyxia, carried out in 2017-2020 in three regions of the country. During this period, there were 456 examinations in total, which amounted to 0.31% of the total number of examinations of living persons. The circumstances of the incidents were thoroughly studied from

the submitted case materials, information from medical documents, data from an expert examination, as well as the results of consultations of clinical specialists carried out as part of the examination. In each case, a special card was filled out containing information about the sex, age of the victims, place and time of the incident, the type and duration of asphyxia, the identified bodily injuries, and the features of the clinical course of the post-asphytic state (about 30 parameters). The map data were digitally coded and a database was prepared for further statistical processing. The results are presented in the form of tables, graphs, diagrams.

### RESEARCH RESULTS

In total, during the specified period, there were 59 examinations of children and adolescents for interrupted asphyxia (group I), which amounted to 12.9% of all such cases. They were considered in comparison with the cases of post-asphytic states of older persons (group II).

It was found that in group I, 69.5% were males, and this indicator in adults was significantly lower (55.7%). The majority of cases (89.8%) of incomplete asphyxia in the first group were associated with an attempt to hang themselves, in other cases (10.2%) there was strangulation by hand. In group II, these indicators were equal to 83.1% and 16.1%, respectively, and there were 2 cases associated with strangulation by a loop. Thus, in our observations, all cases of incomplete asphyxia were of post-strangulation origin. In

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the group of children and adolescents, in 86.5% of cases, the loop was made of semi-rigid material, in 11.5% - of soft material, in one case (1.9%) - of solid material. In group II, these indicators were equal to 64.3%, 30.2% and 5.5%, respectively.

In the development of the post-asphytic state, the duration of the asphytic effect is of great importance. For this reason, we retrospectively analyzed information about the circumstances of the incident obtained from various sources. In group I, in 22.0% of cases, strangulation lasted up to 30 seconds, in 18.6% - up to one minute, and in 35 cases out of 59 (59.4%) there was a longer exposure to the

neck. After the accident, the majority of children and adolescents (93.2%) sought medical help, 83.1% of them received inpatient treatment. These indicators did not differ significantly from adults.

In a comparative analysis of the duration of inpatient treatment, it was found that the affected children and adolescents had a longer period of treatment. In 40.8% of cases, they were inpatiently treated for 8 or more days, while in adults this indicator was 23.8%. 36.7% of children and adolescents were in the hospital for up to 3 days, in adult victims this figure was 48.9% (Fig. 1).

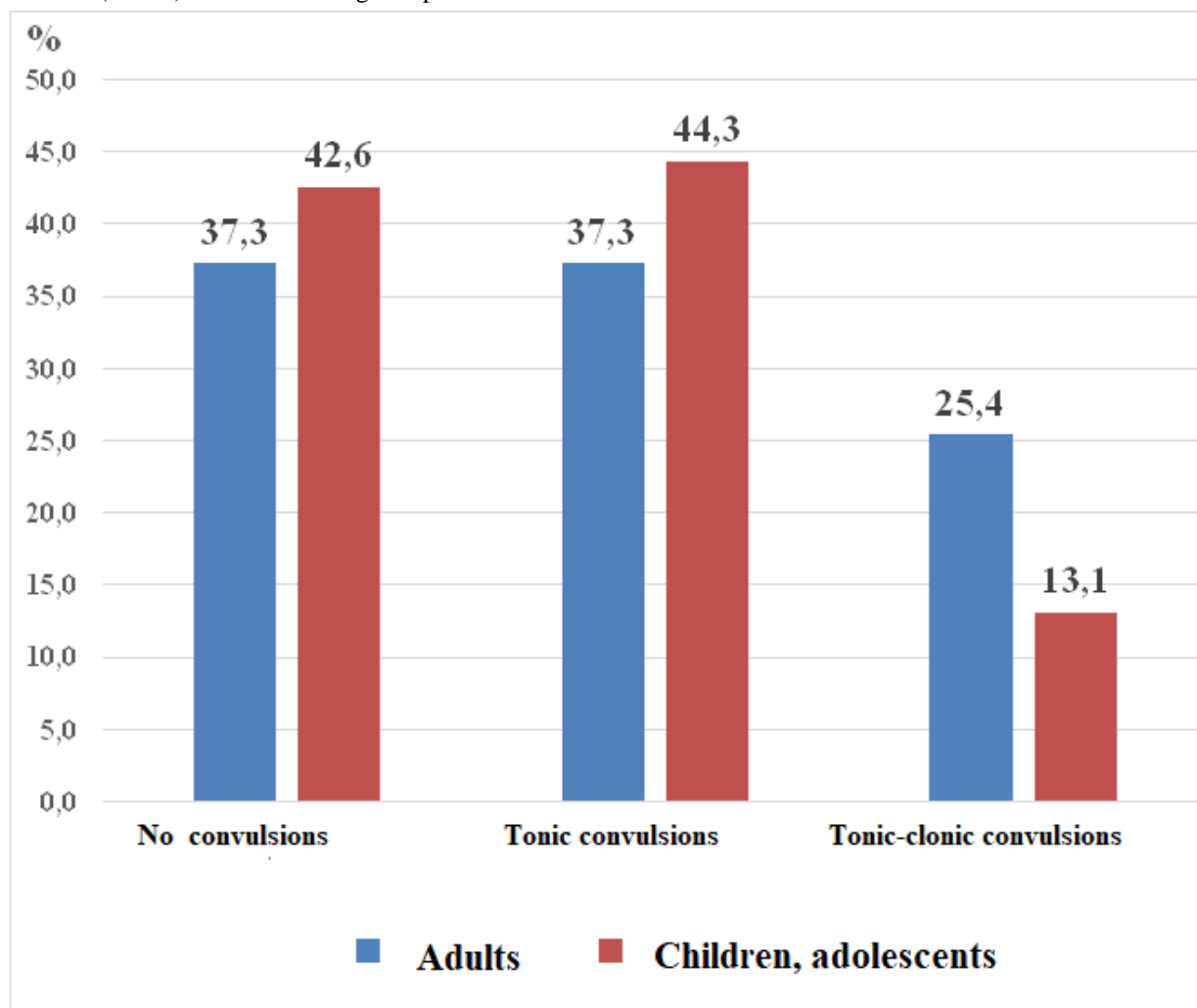


Fig.1. Convulsions in victims

The post-asphytic state is characterized by the development of a whole complex of dysfunctions of various organs and systems of the body. In the forensic medical qualification of the severity of injuries that have arisen in cases of incomplete asphyxia, dysfunctions of the central nervous system are of decisive importance. These signs include various degrees of impairment of consciousness, the development of tonic, tonic-clonic convulsions, memory impairments, focal neurological disorders, etc.

It should be emphasized that one of the serious problems in the production of a forensic medical examination about incomplete asphyxia is the scarcity of objective data, since the victims turn to the examination after a certain time after the normalization of the general condition. By the time the expert is examined, the initial damage, various disorders of the functions of organs and systems undergo corresponding changes or disappear altogether. Therefore, in order to ensure the reliability of the analysis results, the main emphasis was on the data of official medical documents.

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It was found that in a quarter of cases (25.4%) children and adolescents did not lose consciousness after asphyxia (24.2% in adults). However, the indicators of more prolonged loss of consciousness in group I was significantly

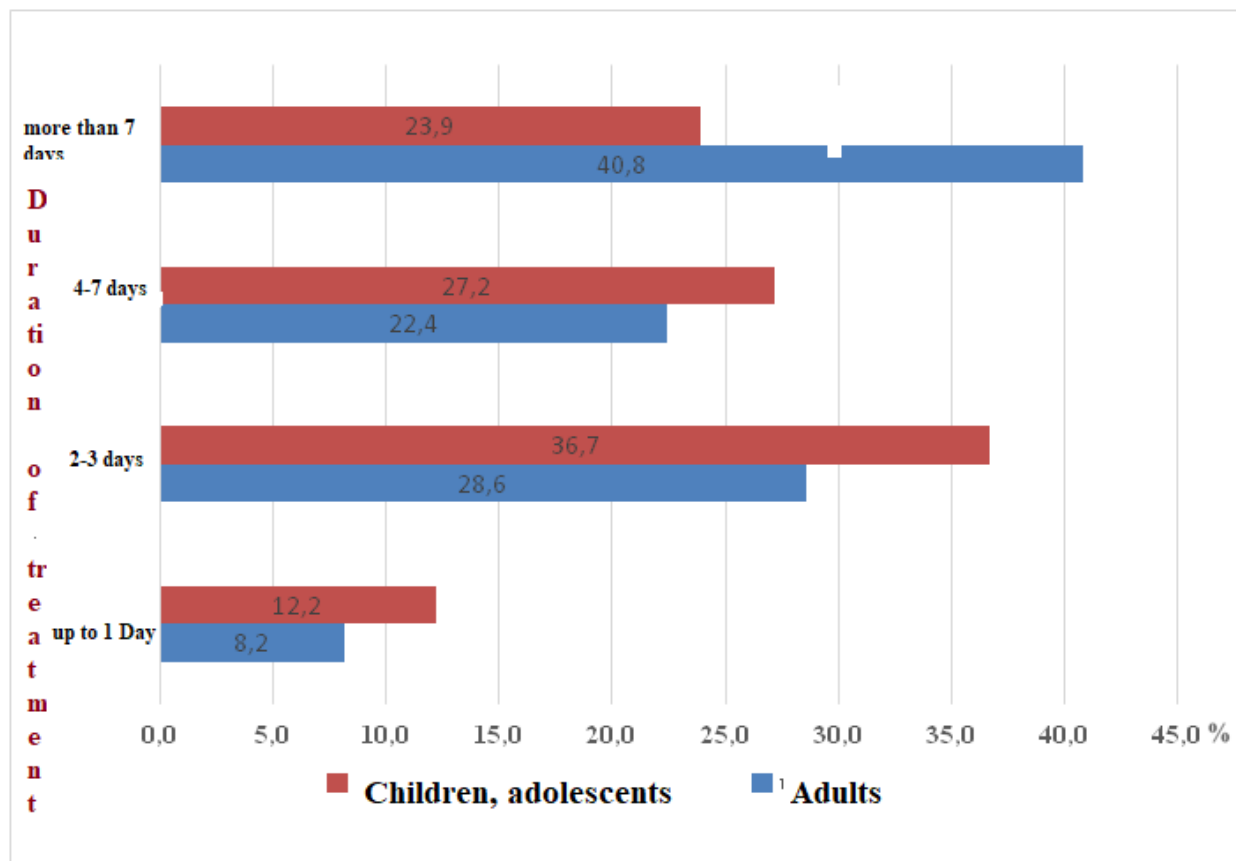
higher. So, if 40.7% of children and adolescents were unconscious for more than a day, of which 8.5% - for more than five days, then in adults these indicators were 27.5% and 3.0% (table).

**Table 1. Comparative data on the duration of loss of consciousness (in%)**

№	prolonged loss of consciousness	children, adolescents	adults	all
1	absent	25,4	24,2	24,3
2	Up to 1 hour	13,6	19,6	18,9
3	Up to 1 day	20,3	28,7	27,6
4	Up to 1-3 days	25,4	20,2	20,8
5	3-5 days	6,8	4,3	4,6
6	More than 5 days	8,5	3,0	3,7

In group I, seizures of different nature were observed somewhat more often (62.7%) than in adult victims (57.4%). While 25.5% of affected children and adolescents had tonic-

clonic seizures, in adults this indicator was almost two times lower (13.1%) (Fig. 2).



**Fig. 2 Activity of inpatient treatment**

In most cases, the affected children and adolescents with seizures also had hemorrhages under the mucous membrane of the eyeball and eyelids, and retrograde amnesia was stated in medical documents. These signs were noted in 64.4% of representatives of group I, in adults they were detected somewhat less often (54.4%).

One of the important tasks of forensic medical examination in cases of incomplete asphyxiation is to

determine the severity of bodily injury, i.e. harm caused. In this case, depending on the characteristics of the pathological condition that has arisen, various qualification criteria can be applied. In 34 cases out of 59 (57.6%), the victims had deep coma (II and III degrees) and the injuries were assessed as serious on the basis of danger to life. In adult victims, the threat to life was found in 49.9% of cases. According to the examination materials, other types of life-

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threatening conditions were not noted during post-strangulation disorders. In all other cases, the severity of injuries was determined by the criterion of the duration of the health disorder.

### DISCUSSION OF THE RESULTS

According to the materials of forensic medical examination, children and adolescents accounted for 12.9% of all cases of non-lethal asphyxiation. In a comparative analysis of the post-asphyctic states of children, adolescents (group I) and adults (group II), it was found that the proportion of males among children and adolescents was significantly higher (69.5%) than among adults (55.7%). Children and adolescents more often used a loop made of semi-rigid material (86.5%). Whereas in about a third of adult cases, the loop was made of soft material

In group I, in 59.4% of observations, strangulation lasted more than one minute. Most of them sought medical help and 83.1% received inpatient treatment. Moreover, the duration of treatment in this group was longer than in adults.

After the incident, about a quarter of children, adolescents and adults did not lose consciousness. At the same time, in group I, the indicators of loss of consciousness for longer periods were slightly higher. Also, various seizures, especially tonic-clonic ones, were more often observed in representatives of group I.

In both groups, the threat to the life of the victims was associated with the development of a severe degree of coma, and on this basis, 57.6% of cases of group I, 49.9% - of group II, damage was assessed as severe.

### CONCLUSION

Summarizing the above, we can conclude the following:

1. Children and adolescents accounted for 12.9% of all cases of incomplete asphyxia and the absolute majority of them arose after attempted suicide by hanging.
2. At the same time, the unconscious state in children and adolescents is more prolonged and various convulsions are observed more often than in adults.
3. Deep coma due to severe dysfunction of the brain is the main factor that poses a threat to the lives of victims.

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