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Research Article

SOME ASPECTS AGGRESSING BURN DISEASE IN ELDERLY AND SENILE PATIENTS

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ABSTRACT

The results of a survey of 522 elderly and senile patients with burn disease are presented. In victims of 60 years and older, burn shock develops with an area of deep skin damage up to 5% of the body surface against the background of concomitant diseases and is characterized by a significant severity of the course. Concomitant diseases were detected in 98% (in 511 out of 522) of patients in whom diseases of the cardiovascular and pulmonary systems predominated, and in a number of patients (33.9%) there was a combination of several concomitant diseases.

KEYWORDS

Burn disease, elderly and senile age.

INTRODUCTION

Thermal lesions in elderly and senile people is a complex medical problem, where the leading role belongs to age-related changes in the body and associated disorders of the microcirculation process, metabolic processes, pathological changes in internal organs and systems [3, 5, 8].

Elderly and senile people are at risk for thermal injury. Age, burn area, interval between injury and admission to the burn center, comorbidities are the main factors that determine the severity of the injury and affect the prognosis and treatment tactics [1, 4, 6, 10].

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The current demographic situation in developed countries is characterized by a decrease in the birth rate and the aging of the population [2, 5, 7, 9].

The general aging of the population of the Republic of Uzbekistan has a clear upward trend. This is reflected by an increase in the number of elderly and senile patients in burn centers, whose proportion reaches 1/3 or more of all hospitalized patients [1, 3, 6]. There is an opinion that comorbidity in elderly and senile patients reduces their resistance to operational stress [1].

Purpose of the study. To study the epidemiological features of burn disease in elderly and senile patients.

RESEARCH MATERIALS

In the burn department of the Samarkand branch of the Republican scientific center for emergency medical care in the period 2000-2022 522 elderly and senile patients were treated with burn disease. The terms of admission of patients from the moment of receiving a burn varied from 6 hours to 25 days, which are presented in table 1.

Table 1. Terms of admission of patients to the clinic after receiving a thermal injury

Time from the moment of receiving a burn to admission to the clinic	Total	
	abs.	%
First 6 hours	101	19,3
From 6 to 12 hours	72	13,7
From 13 to 24 hours	51	9,8
From 25 to 48 hours	49	9,4
From 2 to 3 days	73	13,9
From 4 to 5 days	71	13,6
From 6 to 10 days	40	7,6
From 10 to 25 days	67	12,7
Total	522	100

When analyzing the data in Table. 1 it turned out that for victims of elderly and senile age, late seeking medical help is typical (345). During the first three days after the injury, out of 522 patients, 346 (66.3%) victims applied. Reasons for late admission: subjective underestimation of the severity of the injury by the victims (in 72 patients), decreased pain sensitivity in the area of deep burns, unwillingness to be hospitalized (in 32 patients), helplessness (among single patients - 23 patients), etc. Late admission

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negatively affects both the general condition of such patients , and during the course of the wound process, and also significantly narrows the possibilities of early surgical necrectomy and requires the use of other methods of surgical treatment (398).

Approximately half of the patients with burns (42.9%) were admitted within the first 24 hours after injury, which made it possible to follow the dynamics of the clinical course, determine the most optimal volumes of infusion-transfusion therapy and evaluate its effect on the condition of the victim, to carry out in dynamics, starting from the first hours after injury, studies to assess the degree of dysfunction of vital organs and systems.

Patients aged 60 to 92 were treated. The mean age was 73.3±0.41 years. According to the WHO classification (1972), patients were distributed by age as follows:

- Elderly patients (60-74 years old) - 217;
- Patients of senile age (75-89 years old) - 300;
- Centenarians (90 and older) - 5 people.

The distribution of patients by age categories is shown in Fig. 1. 1, it is shown that the frequency of adverse outcome increases progressively with age. So, from Fig.1 shows that the death rate in elderly patients (up to 75 years) is 12.90% (28 deaths out of 217), and in senile patients - 23.33% (70 out of 300). In the group of centenarians, the lethality was 100%, which is probably due to the small size of the group (5 people).

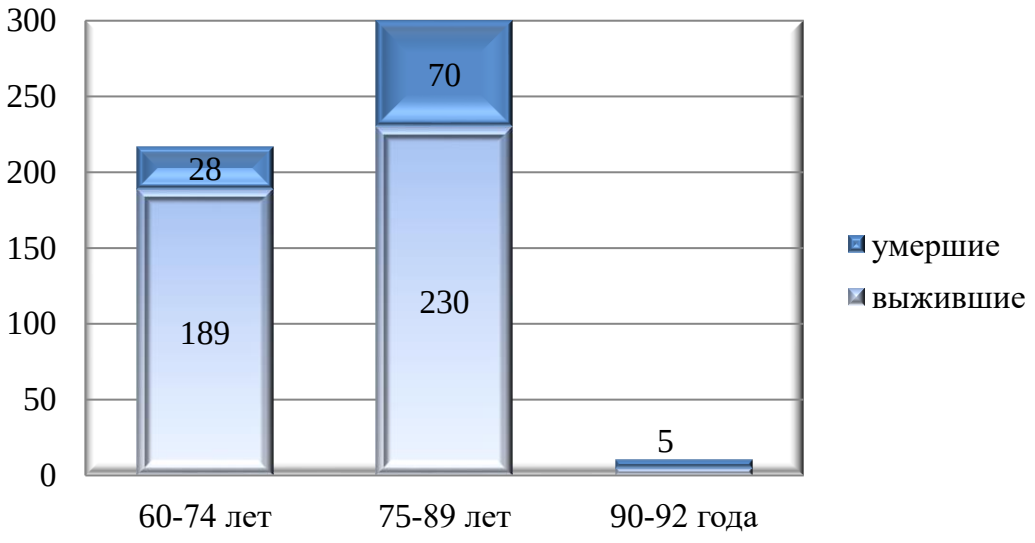

Fig 1. Distribution of patients by age group and outcome

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According to the nature of the impact of the damaging factor, burns with boiling water (33.7%), hot food (26.8%) and flame (15.5%) prevailed. Among the elderly, burns were mainly of a domestic nature (in 515-98%). According to our observations, helplessness and poor coordination were important factors contributing to the high incidence of burns in the elderly, especially those over the age of 75 years (62.6%) from 55.4 to 62.7%. The etiology of burns and the age of patients are presented in Table 2.

Table 2. Causes of burns and age of patients

Causes of burns	Age of patients						Total	
	60-74 years		75-89		90 years and older			
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Boiling water	29	5,5	147	28,2			176	33,7
Hot food	76	14,5	59	11,3	5	0,96	140	26,8
Flame	60	11,5	21	4,0			81	15,5
Hot items	22	4,2	41	7,8			63	12,1
Steam	29	5,5	26	4,9			55	10,5
Chemical substances			4	0,8			4	0,8
Electric trauma	1	0,2	2	0,4			3	0,6
Total	217	41,6	300	57,5	5	0,96	522	100

Among the burned elderly and senile age, there were from 59 to 60.3% of women and from 39.7 to 41% of men. The age of the majority (58.4%) of the victims is from 75 to 92 years. Urban residents accounted for 308 (59%), and rural residents - 214 (41%) patients.

In accordance with the recommendations of the National Burn information Exchange - NBIE (Feller I. 1976), two age levels (60-74 and 75-92 years), five levels of deep burn area (up to 5%, 6-10%, 11- 20%, 21-30% and more than 30% b.t.).

To determine the burn area at which 50% death of patients is observed (lethal area, LA50), probit analysis was used, which is based on a two-dimensional linear regression equation by the least squares method (Bull J. P., Squire J. R., 1949; Pruitt B. Jr. et al ., 1964).

The total number of chronic diseases and pathological conditions per patient in the group was calculated

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(based on the conclusions of a general practitioner, neuropathologist, urologist, psychiatrist, etc.).

To characterize the severity of lesions, several indicators are used: the total area of the burn, the area of deep lesions and the assessment in arbitrary units according to the Frank coefficient (G. Frank, 1960).

The area of the burn was determined by the method of "nine" (A.B. Wallace, 1951). Burns up to 30% of the body surface were in 370 (71%) patients, 30% or more in 152 (29%) patients (Table 3).

Table 3. The total area of the lesion and the age of the victims (group I)

Total affected area	Age of patients						Total	
	60-74 years		75-89 years		90 years and older			
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Up to 10	92	17,6	93	17,8			185	35,4
11-20	42	8,0	68	13,0			110	21,1
21 -30	27	5,2	48	9,2			75	14,4
31-40	26	4,9	38	7,3			64	12,3
41-50	8	1,5	22	4,2			30	5,7
51-60	13	2,5	11	2,1	1	0,2	25	4,8
61-70	7	1,3	14	2,7	3	0,6	24	4,6
More than 70	2	0,4	6	1,1	1	0,2	9	1,7
Total	217	41,6	300	57,5	5	0,96	522	100

The depth of skin lesions was determined by a four-degree classification adopted at the XXVII All-Union Congress of Surgeons (A.A. Vishnevsky et al., 1960). The area of a deep burn and the age of the burnt are shown in Table 4.

Table 4. Deep burn area and age of patients

Deep burn area, %	Age of patients						Total	
	60-74 years		75-89 years		90 years and older			
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Up to 5	55	10,5	163	31,2			218	41,8
6-10	70	13,4	68	13,0			138	26,4
11-15	44	8,4	34	6,5			78	14,9

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16-20	21	4,0	18	3,4			39	7,5
21-30	16	3,1	11	2,1	2	0,4	29	5,5
31-40	7	1,3	6	1,1			13	2,5
More than 40	4	0,8			3	0,6	7	1,3
Total	217	41,6	300	57,5	5	0,96	522	100

90.6% of patients had deep burns up to 20% of the body surface (in 473 out of 522). In a state of burn shock of varying severity, 324 (62.1%) out of 522 elderly and senile patients with burns II-IIIAB-IV degree 10-55% b.t. were admitted. (IIIB-IV degree from 5 to 40% b.t.), admission time - the first day after the injury.

The stage of acute burn toxemia (AOT) was diagnosed in 169 patients (77.9%) who survived the stages of shock (70) and were admitted on days 3-8 after injury with burns II-IIIAB-IV degree 5-50% b.t., IIIB- IV degree - 5-40% b.t. Septicotoxemia was noted in 21 patients (40.4%) of all patients with burns.

The severity of burn disease is determined mainly by the area and depth of the lesion. Both indicators are reflected by us using the Frank index. At the same time, burns with a Frank index of up to 30 were in 186 (35.6%) patients, from 31 to 60 - in 150 (28.7%) victims, from 61 to 90 - in 118 (22.6%) patients, from 91 to 120 - in 22 (4.2%), from 121 to 150 - in 35 (6.8%) victims and over 150 in 11 (2.1%) patients (Fig. 2). Burned patients with a favorable prognosis (FI up to 60 units) accounted for 64.3%, doubtful and unfavorable (FI over 60 units) - 35.7%.

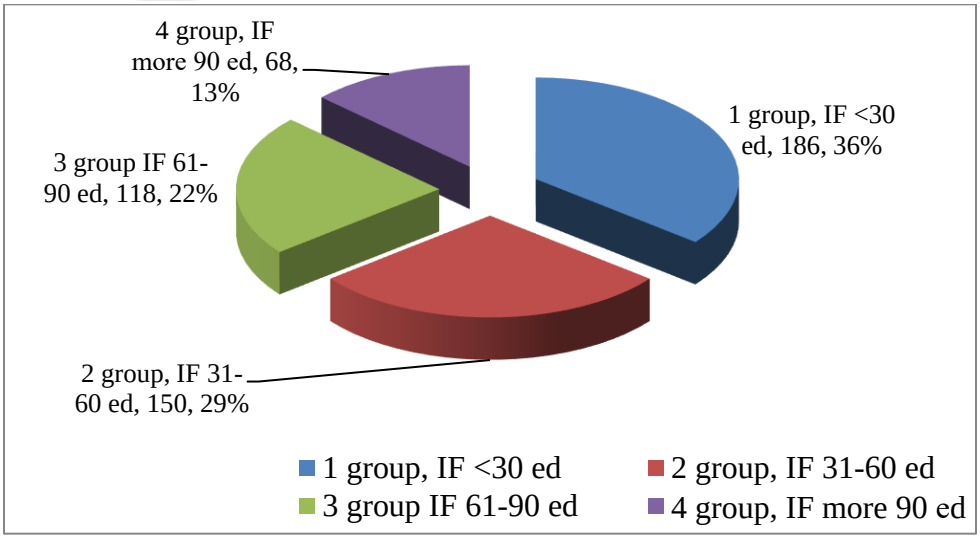

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Fig. 2. Distribution of patients into groups in accordance with the Frank index

The distribution of victims according to the location of burns for which they were treated is presented in Table 5. In the observed patients, burns of the torso prevailed (73.3%), which is probably due to impaired coordination of movements in elderly patients.

Table 5. Localization of burns and age of patients

Localization of burns	Age of patients						Total	
	60-74 years		75-89 years		90 years and older			
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Head and neck	8	1,5	30	5,7			38	7,3
Chest	39	7,5	79	15,1	3	0,6	121	23,2
Belly	68	13,0	72	13,8	2	0,4	142	27,2
Back	61	11,7	59	11,3			120	22,9
Upper limbs	19	3,6	30	5,7			49	9,4
Lower limbs	15	2,9	23	4,4			38	7,3
Buttock	7	1,3	7	1,3			14	2,7
Total	217	41,6	300	57,5	5	0,96	522	100

No less important influence on the nature of the treatment of burn disease and its outcomes is exerted by concomitant diseases identified in 98% (in 511 out of 522) of elderly and senile patients (Table 6).

The study took into account only serious diseases that could in one way or another affect the outcome and treatment tactics.

Table 6. Comorbidities identified in patients with thermal injury*

Premorbid background	Age of patients			Total	
	60-74 years	75-90 years	90 years and older	abs.	%
General atherosclerosis, coronary-cardiosclerosis, coronary artery disease	128	279	2	409	42,9
Hypertension	88	87	3	178	18,7

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Chronic bronchitis, emphysema, pneumosclerosis, pulmonary tuberculosis	12	73		85	8,9
Diabetes mellitus	25	34		59	6,2
Disease of the nervous system	3	9		12	1,2
Chronic hepatitis, liver cirrhosis, hron. alcoholism	16	13		29	3,0
Benign prostatic hyperplasia, kidney disease	52	16		68	7,1
Peptic ulcer of the stomach and duodenum	52	48		100	10,5
Malignant neoplasms	7	6		13	1,4
Total	383	565	5	953	100

* - The amount exceeds the total number of patients, because 21.5% of patients suffered from 2 diseases, and 33.9% - from three or more diseases.

As can be seen from the presented table 6, diseases of the cardiovascular and pulmonary systems prevailed in patients, and a number of patients had a combination of several concomitant diseases.

CONCLUSIONS

1. For victims of elderly and senile age, late seeking medical help is typical (66.1%). Late admission negatively affects both the general condition of such patients and the course of the wound process, and also significantly reduces the possibility of early surgical necrectomy and requires the use of other methods of surgical treatment (76.2%).

2. Burn shock in victims aged 60 years and older develops with an area of deep skin damage up to 5% of the body surface against the background of concomitant diseases and is characterized by a significant severity of the course, which is characterized by severe disorders of cardiac activity, external respiration function, liver, kidneys and other vital organs and systems.

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