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CURRENT SITUATION IN PROVIDING MEDICAL CARE FOR BURN INJURIES IN UKRAINE: PUBLIC OPINION

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Abstract

The results of assessment of specialized medical assistance to burn victims are presented in the article, they being based not on standard statistical figures from burn units and centers but on anonymous online survey of 486 respondents (60.5% of them - the residents of Vinnytsya region). The aim of this questionnaire-based survey was to study the level of awareness of Ukrainian population regarding the principles of providing first aid for burn injuries, as well as the availability, quality and shortcomings of current burn care in medical institutions based on the assessment of discharged patients. For this purpose, a 37-

item questionnaire was developed, being divided into some blocks: general information about respondents, pre-medical aid, first medical aid, qualified medical aid and specialized medical care.

According to the questionnaire, 76.9% of respondents rated the quality of medical care 5 scores by 5-score system, 17.9% - 4 scores, 5.2% - 3 scores, being indicative of rather high level of burn care, even in conditions of limited material, technical and financial resources, as well as rapid decrease of confidence in doctors in general. Online survey conducted in every region of Ukraine seems to be reasonable to make adequate assessment of study problem in the country in general.

Key words: Burns; Trend; Knowledge; Management; First aid; Health services; Ukraine.

Introduction

As the incidence of burn injuries in the world is rather high, annual traditional measures are taken to increase the awareness of an average person regarding the principles of proper emergency care in case of thermal injuries [1, 2]. Their time and terms vary from country to country: for instance, British Burn Association arranges National Burns Awareness Day in October (in 2021 it was held on October 20), the American Burn Association holds Burn Awareness Week in the first week of February, and the Australian & New Zealand Burns Association performs such events throughout July (National Burns Awareness Month), etc. [3, 4, 5]. Commonly all those events run in winter-autumn period because of seasonal increase in the risk of burn injury as well as their frequency [6]. The general concept of their organization is similar in many countries, aimed at attracting available resources to inform the community about the principles of prevention and treatment of patients with burns (presenting visual materials in social network resources, publishing press releases in local periodicals, reports of medical experts and volunteers at various educational institutions, participation in television and radio programs, etc.), under the sponsorship of industrialists and entrepreneurs [7]. However, in order to understand the actual level of awareness of population in the problems burn victims may face, quick online interview of various groups of people has become available in many countries due to modern technologies [8, 9, 10]. As to Ukraine, it remains on early stages of their widespread use. Current status of today's situation with burn care in the country is evaluated only on the basis of annual statistical figures given by every burn unit/center according to strictly regulated reference form, which focuses mainly on assessing the quality of relevant units of medical institutions rather than objectively reflect all

organizational aspects [11]. Besides, the time of submission of such information and its reliability often depend on subjective factor; and collecting, processing, analyzing and summarizing the results takes some time as well. A number of restrictions appeared after active reforming of Ukrainian health care system in general and changes in mechanisms of the reporting processes in particular. Besides, rapid aggressive spread of coronavirus infection SARS-CoV-2 (COVID-19) made a significant impact on the work of statistical services [12]. In view of this, as well as considering modern patient-oriented principle of health care, anonymous online surveys seem to be warranted.

The aim of this questionnaire-based survey was to study the level of awareness of Ukrainian population regarding the principles of first aid for burn injuries, as well as the availability, quality and shortcomings of current burn care in specialized medical institutions.

Materials and methods

To achieve the aim of the survey, a 37-item questionnaire was developed, being divided into some blocks: general information about respondents, pre-medical aid, first medical aid, qualified medical care by experts of related specialties (general medicine, surgery, orthopedics and traumatology, dermatology and venerology) and specialized medical care provided by combustiologists. As the time designated for filling in the questionnaire was 10 minutes, some short options for answers were given to help the respondents in making their choice. Besides, the surveyed individuals were permitted to give their own answer to 6 questions. The survey was conducted using the Google Forms information resource, as a part of free web package of Google document editors. Individuals who addressed to the Clinical Center for Thermal Injury and Plastic Surgery of Municipal Non-profit Enterprise "Vinnytsya Regional Clinical Hospital Vinnytsya Regional Council" for medical aid, as well as those who followed them/their relatives were suggested to fill in a published version of the questionnaire. But only 31 persons (6.4%), - those who followed burn patients – agreed to fill in the questionnaire. One of the main reasons was unmotivated refusal to participate in the survey. During the period of November 1 - December 1, 2021, 486 respondents took part in anonymous survey, being not limited in time while filling in the questionnaire.

Research results and their discussion

The survey involved participants from various regions of Ukraine but mainly from Vinnytsya region (60.5%), the majority of them being females. Mostly they were residents of apartments (56.0%), private houses (38.5%) or dormitories (5.1%). Minor persons lived with the half of respondents (50.2%). As for the age structure, 75.9% of participants were individuals aged 18-44, the remainder (24.1%) were persons of older age. 11.6% of

participants had complete or basic secondary education, 7.5% - complete vocational education, 21.8% - incomplete higher education and 49.4% - complete higher education, 9.7% - postgraduate training. Of these, 4.1% were the students of higher medical institutions. About one third of respondents (67.7%) had definite place of employment.

Only 28.6% of participants were found to have monthly income over 10 thousand UAH, while average monthly wages in October 2021 was 14045 UAH (and 13054 UAH in Vinnytsya region) according to State Statistics Service of Ukraine. At the same time, 28.4% of them had monthly income equal to cost-of-living level, indicated in the Law of Ukraine "On the State Budget of Ukraine for 2021" since July 1, 2021. 20.0% of participants either had no income at all or refused to name it (Fig. 1).

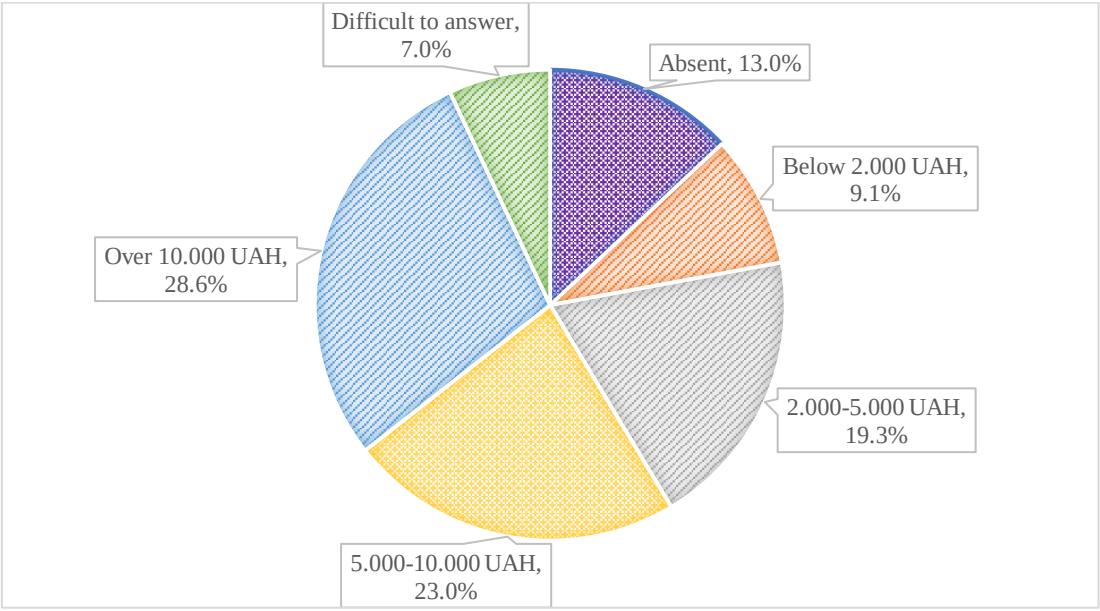

Fig. 1. Approximate level of monthly income of respondents

81.0% of respondents denied harmful habits while 13.0% of them admitted smoking and 6.0% - alcohol abuse. In general, information about the participants of the survey and their socio-economic status was consistent with modern tendencies in developing countries. Because of total virtualization trends in the world, Internet proved to be the major source of information concerning rendering the first aid in burn injuries (33.1% of respondents) followed by TV (18.4%). Training courses and thematic activities provided by educational institutions were often mentioned by participants (16.1%), as well as thematic booklets (12.8%), periodicals (6.1%), radio (2.5%), other sources (0.5%) and only 1.1% of respondents

were informed by medical experts (Fig. 2). 9.4% of respondents had never received any relevant information.

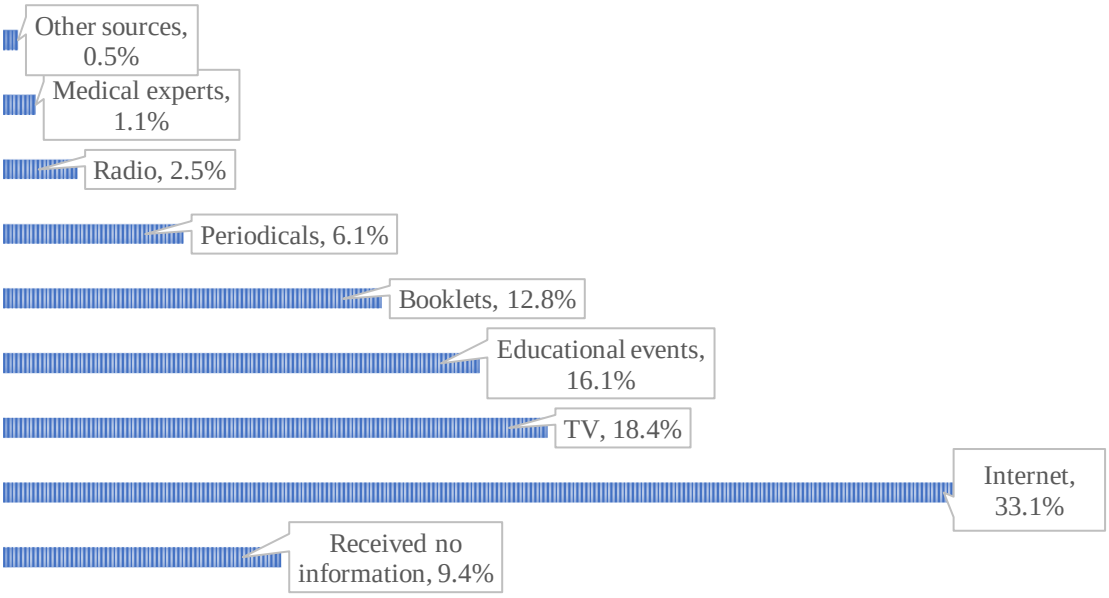

Fig. 2. Major sources of information on the principles of rendering medical aid in burn injuries, mentioned by survey participants

The majority of respondents (98.2%) showed the awareness about high prevalence of domestic burns. In general, 78.0% of them reported their past experience in giving first aid for burns to themselves or their relatives. Primary causes of burn injuries were found to be scalds (36.5 %), contact with hot objects (25.3%), overexposure to ultraviolet radiation (22.9%), flame (8.9%), exposure to aggressive chemicals (4.9%) and electric current (1.5%). Those results appeared to be similar to those found in other countries, being consistent with the global trends [13]. First aid measures in handling burn injuries, taken by respondents were the following: the use of local action remedies (50.9%), removal of clothing immediately after the injury (11.4%), covering the damaged area with burn-relief packs or sterile gauze bandage (3.7%). Partial combination of the latter was mentioned by 19.5% of victims and only 14.5% of respondents reported the use of all the above-mentioned components as first aid measures.

Among the remedies of local action, water was an apparent leader - 31.3% of respondents used it. Wound healing agents - dexpanthenol containing aerosols or ointments/creams/gels - were applied to the burn area by 12.3% and 2.6% of participants, respectively. 32.5% of victims reported the combined use of above-mentioned remedies, but the time of water use was very short. In 14.9% of cases, aerosol medications aimed at

stimulation of reparative processes, were combined with low-temperature action (water below 10° C or ice). Despite numerous official channels of information currently available almost without restrictions, the following traditional folk remedies are still commonly used: oil - 2.4%, toothpaste - 1.6%, animal fats - 1.1%, fermented dairy products - 0.8%, egg white - 0.5%.

Subsequent questions were focused on the detailed study of the use of water as one of the major, worldwide recognized remedy in burn injuries. In the majority of cases (62.6%) tap running water was preferred; besides, containers filled with water (22.1%) or applications with water moistened wipes (15.3%) were used as well. The duration of water action did not exceed 10 minutes in 49.8% of cases, and less than 20.6% of victims used it for 20 minutes as indicated by existing guidelines (Fig. 3).

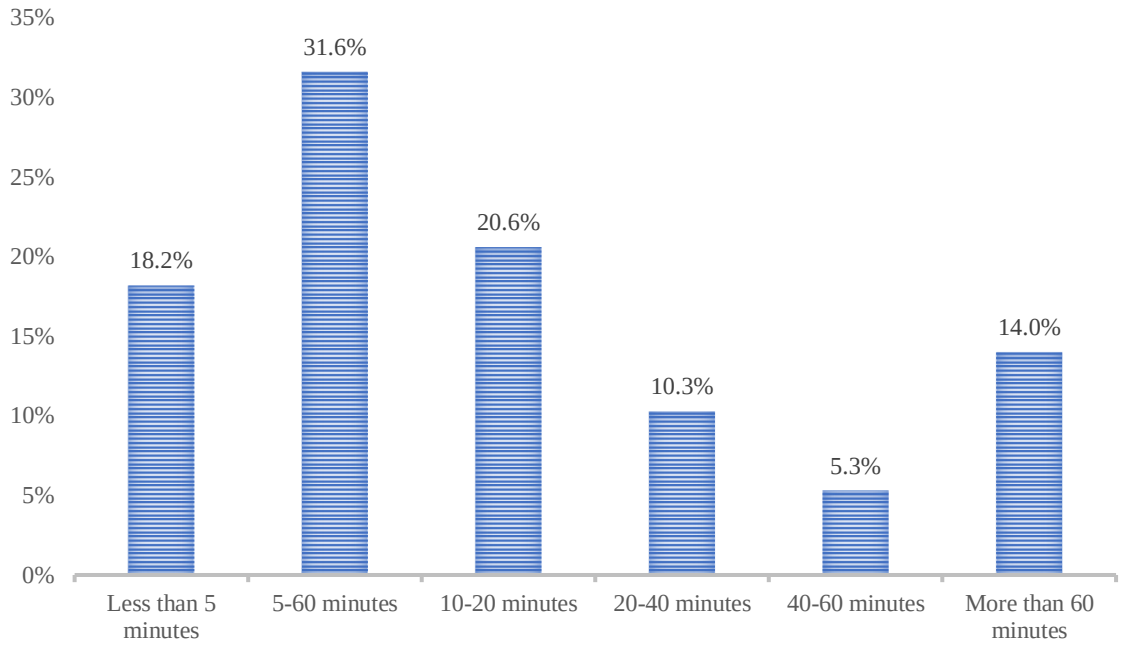

Fig. 3. Duration of water use by respondents as first aid in burn injuries.

37.5% of burn victims required further qualified medical assistance: 16.7% addressed directly to the burn unit/center or other units of the third level medical care institution, 8.7% - to city (district) hospitals and 11.3% - to primary medical care institution (to general practitioners). Only 3 respondents (0.8%) visited private medical centers, though today they are not willing to deal with burn injuries because of difficulties in treatment of burn wounds as well as high costs for burn injury care (Fig. 4).

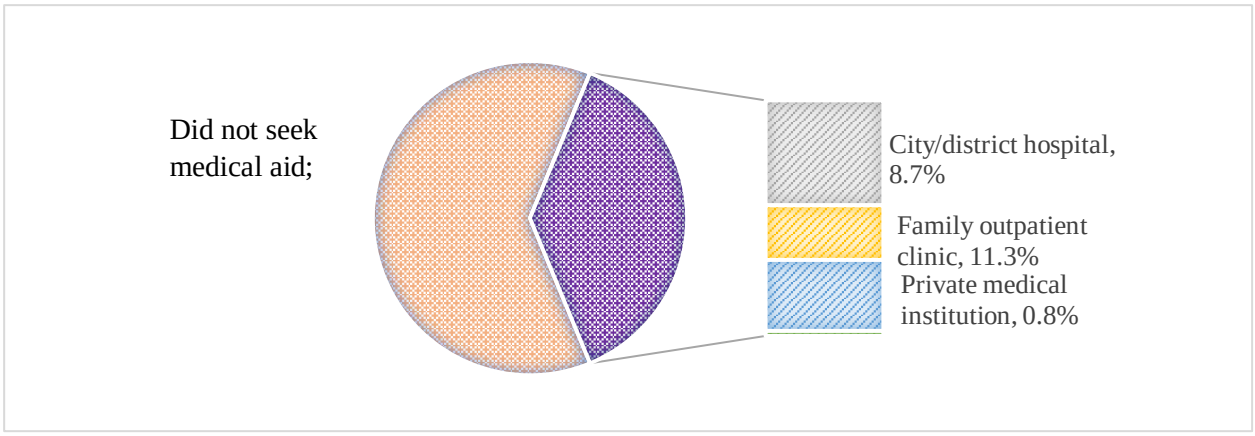

Fig. 4. Visiting medical institutions by burn victims

The first day of burn injury was the most common time for seeking medical assistance (72.7 %) because of the burn itself. The percentage of patients who visited medical institutions on days 2, 3, 4, 5 after the burn injury was 14%, 7%, 0.7%, 5.6%, respectively. Those visits were associated not only with the burns, but also because of rapid deterioration of general condition or the development of various complications. In 83.9% of cases, patients came to the hospital on their own, and only 16.1% were taken there by the ambulance.

Those patients who received medical aid at primary and secondary level medical institutions were administered antibacterial and analgesic drugs (21.7% of responders), local antimicrobials (21.7%), resuming water use as needed until pain disappeared or temperature normalized in the damaged area (23.1 %), covering burn surfaces with wound dressings (25.9%), and application of wound healing agents being the most common first aid measure (46.2%). Polyvinyl chloride film was commonly used for temporary closure of the burn area after neutralization of hyperthermic factors; besides, in some cases specialized coatings (OpikUn® (Zantex (Ukraine)), Burnshield® (Burnshield (South Africa)), etc.) were used for emergency burn care as well. According to 3.5% of respondents, they received no recommendations or effective assistance at this level. A total of 23.8% of patients with burn injuries were referred to burn units/centers for specialized care. 8.4% of respondents reported unreasonable delay in referral to the hospital while 3.5% of them mentioned difficulties with the availability of potential hospitalization.

Modern principles of providing qualified care to patients with burn injuries imply early surgical removal of necrotized tissues preferably performed by combustiologists in specialized centers provided with all necessary material, technical equipment and trained staff. Because of that, 66.7% of respondents treated in burn units/centers, underwent surgical necrectomy followed by the closure of postoperative wounds with biological, synthetic skin

substitutes or autodermotransplants. In 58.9% of patients, such surgery was performed within the first three days after the injury (Fig. 5).

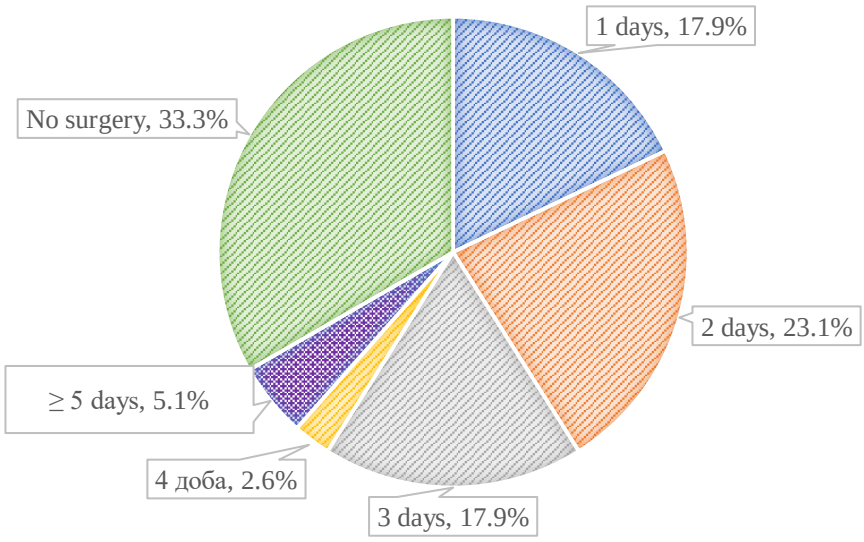

Fig. 5. Time period of performing surgical removal of necrotized tissues in respondents treated in burn units/centers of Ukraine

The results obtained are consistent with statistical data: in 2018 average surgical activity was 50.6 in Ukraine and 87.3 in Vinnytsya region.

In 69.7% of burn victims, biological skin substitutes of Ukrainian production - lyophilized xenodermoimplants (Institute of Biomedical Technologies) were used as temporary wound closure. Synthetic materials of various structure (Grassolind®, Branolind®, Atrauman® (Hartmann (Germany)), Jelonet® (Smith & Nephew (England)), Aquacel® (Convatec (England)), Algicell® (Derma Science (USA)), “ARMA-GEL+”® with different fillers (Ukrtechmed (Ukraine), etc.) were mentioned by 30.3% responders.

In 7.7% of patients, surgery for early radical removal of necrotized tissues was followed by autoplasty or combined autodermoplasty.

After discharge from the burn center, there were few cases of visiting local polyclinics, mainly to deal with the problems of updating temporary disability certificate, obtaining an electronic referral to combustiologist for examination, etc. Repeated visits to burn experts were mostly associated with routine examinations on 28-35th days after discharge, and less often – because of the signs of scarring or ulcers that had not healed for a long time.

The issues related to the quality of recommendations provided by physicians at the stage of discharge seemed to be of great significance: 74.4% of respondents rated them as quite helpful and easy to understand. Others did not fully understand them (5.1%) or denied receiving any such information at all (20.5%). At the same time, on completion of therapy, only 25.6% of respondents received information concerning the access to further sanatorium rehabilitation aimed at the management of disorders in organs and systems directly caused by burn injuries.

Ukraine has long been famous for a wide range of health resort services allowing to achieve rather good results in treatment and rehabilitation of patients with various pathological processes, including those caused by burn injuries. It could become possible not only because of rich natural resources but also due to professional work of multidisciplinary team of specialists, modern technologies, numerous scientific innovations, close relationship between various medical and diagnostic institutions. Significant progress in providing care to patients after burn injuries was achieved at the State Enterprise "Clinical Sanatorium “Avangard” located in Nemyriv, Vinnytsya region, including decrease in manifestations of contractures and deformities caused by skin scarring, asthenization of reconvalescents, compensation of autonomic nervous system dysfunction, functional restoration of internal organs, etc. Fruitful cooperation of specialists in functional diagnostics and combustiologists resulted in development and introduction of unique modern rehabilitation technologies, some of them having no similar methods in other health care institutions. State support remains important as well, providing available health-resort care and rehabilitation to individuals in accordance with recommended standards approved by the Ministry of Health of Ukraine [14]. Hence, the fact that 74.7% of respondents received no information from health experts about the possibility of obtaining qualified rehabilitation care is unacceptable and requires taking emergency measures.

In general, quality of rendering medical aid for patients with burn injuries and the work of "people in white coats" was assessed as highly professional by respondents. Negative comments were related mostly to difficulties with transportation of burn victims, technical and living conditions at state medical institutions, the number of patients in the wards and prices for drugs not included in the National List of Essential Medicines [15].

Conclusion

The results obtained during the survey demonstrated the lack of information on the principles of providing appropriate and sufficient first pre-medical aid in case of burn injuries even among educated people having satisfactory socio-economic living conditions. To solve

this problem, Internet resources including social networking sites and messengers should be widely used for receiving adequate information, interactive communication and online support for burn victims. Educational component should not be forgotten as well, as it still remains one of the major elements in educational process requiring constant systemic updating. Every possible effort should be taken to restore the value of preventive and rehabilitation medicine in comprehensive program for management of patients with burn injuries and their complications. Taking into consideration limited material, technical and financial resources in Ukraine, as well as rapid decrease of confidence in doctors in general, 76.9% of survey participants rated the quality of medical care 5 scores by 5-score system, 17.9% - 4 scores, 5.2% - 3 scores, being indicative of rather high quality of providing medical aid to patients with burn injuries.

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