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*Knowledge of burns management among citizens of Lublin*

Znajomość zasad udzielania oparzonym pierwszej pomocy  
wśród mieszkańców Lublina

Considerable attention has focused in recent years on an increased number of emergencies, which is tightly associated with civilisation development and use of many technical appliances. Every day many people may experience burn trauma despite using different methods of protection. Since an immediate medical intervention is not always possible, it seems important to obtain skills of performing first aid for the burned. Properly performed first aid in emergency plays a significant role in treatment effects of burned individuals.

OBJECTIVE

The purpose of the study was: 1) to assess if citizens of Lublin are prepared to perform first aid for the burned, 2) to estimate their knowledge of burns management, 3) to consider if the first medical aid for the burned was appropriate and effective.

MATERIAL AND METHOD

The study was carried out with application of anonymous questionnaire among factory and big corporation workers. The only condition to be involved in the investigation was to own permanent registration in Lublin. The questionnaire (enclosed) consisted of one and multiple choice questions.

## RESULTS

The studied group included 740 subjects: 396 women, aged 18-60 and 354 men, aged 23-63. The most numerous group consisted of subjects aged 30-50 years. All data were shown in Table 1.

Table 1. Age of respondents

Age	Women	Men
18-20 years	7	0
21-30 years	68	93
31-40 years	201	74
41-50 years	109	120
over 50 years	11	67
Total	396	354

Table 2 shows the respondents' education. The most numerous group comprised subjects who had secondary education: 56% of women and 54% of men.

Table 2. Education of respondents

Education	Women	Men
Elementary	0	0
Vocational	20	41
Secondary	222	191
Higher	154	122
Total	396	354

The majority of the inquired - 466 subjects (63%), mainly women, considered popular magazines and classes training in acting in emergency (at school, work, driving school) the main source of burns management. The answers were presented in Table 3. The respondents stressed that preparing them during such classes to perform medical aid for the burned was too general and superficial.

Table 3. Knowledge of the source of burns

Knowledge source of burns	Women	Men
Magazines	298	168
Professional literature	16	21
Schoolbooks	87	96
Television programmes	30	38
Radio broadcasts	4	7
Rescue classes	42	129
Others	12	30

Knowledge of the principles of burns management in emergency was also studied. Since there were multiple choice questions, the answers were not included in the tables. No significant differences as regards sex, age, and education level were noticed in the answers.

The first question involved the sequence of first aid procedures dealing with the burned in emergency. Putting them in appropriate order turned out to be a serious problem for respondents. Only 22 subjects (3%) gave proper answers.

Table 4. Ways of burn wounds supplying

Way of wound supplying	Women	Men
Use of alcohol, iodine	24	14
Use of oil	7	6
Use of dusting powder	37	11
Pouring cold water	235	298
Applying sterile dressing	111	76
Use of ointment	59	35
Fixing burned limb	2	25
Leaving wound with no dressing	0	0
Transport to hospital	280	167
Other methods	0	0

The appropriate answer to the question how to put flaming clothes out, was given by 73% of individuals (540 subjects). "Tightly wrapping a blanket or a coat around the burned" was the most often chosen reply. 120 respondents (16.2%) would extinguish flaming wardrobe by pouring water, the rest - 80 subjects (10.8%) did not know how to handle the problem.

The answers including methods of dressing wounds were presented in Table 4. Only few subjects responded in a correct way.

Table 5. Burns management

Burns management	Yes	No	I do not know
Removing clothes adhering to burned skin	163	281	296
Removing burned bullas	255	355	130
Use of sterile dressing on burned face	266	126	348
Giving liquids to drink directly after injury	96	155	489
Covering the burned with blanket, aluminum foil	81	192	471
Burn breadth assessment	11	709	20

In Table 5 there were opinions about first aid procedures used to bring help to the burned. The answers showed that the respondents were not well-prepared to perform first medical service. On the other hand, the inquired would be able to cope with casualties of electrocution. According to 703 subjects (95%) the most important thing in

Table 6. Chemical injuries management

Chemical injuries management	Women	Men
Washing up burned area with water	53	86
Removing contamination	2	4
Transport of the burned to hospital	298	230
Use of neutralising agents	12	33
Applying sterile dressing	74	85
Other methods	0	0
I do not know	183	76

Tabela 7. Burn eye management

Burn eye management	Women	Men
Bathing eye with water	12	23
Application of dressing	0	5
Transport of the injured to hospital	304	287
Use of eye drops	26	12
Not allowing to rub burn eye	35	28
Use of cold dressing	7	12
Other methods	0	0
I do not know	134	112

this case was to cut off the electric source. The majority of respondents - 585 individuals (79%) defined the electric burn as a severe injury, 81 subjects (11%) could not describe the scale of electric trauma, 74 subjects (10%) did not consider the severity of electric injury. The respondents did not explain their point of view.

In Table 6 the answers concern chemical injuries management. A large number of respondents would transport the injured to hospital immediately. They did not know how to behave in such a situation.

The inquired were not prepared to deal with an eye injury (the answers were presented in Table 7). 35% of the subjects would not know what they should do in that case. Only few respondents - 40 subjects (5.4%) would decide to bathe an injured eye with

Table 8. Sun burns management

Sun burns management	Women	Men
Use of ointment	287	235
Rubbing soap in burned area	0	0
Pouring cold water	12	43
Transport of the burned to hospital	23	12
Other methods	35	27
I do not know	76	85

water and supply it with dressing. However, 591 subjects (79.9%) would transport such casualties to hospital immediately.

Sun burns occur most often. Ways of acting in such a case were presented in Table 8. 522 respondents (70.5%) considered ointment application to be the most effective method. They did not define a kind of ointment. 62 subjects (8.4%) would use other methods: spreading Panthenol on burned skin, curd or butter applying. 35 subjects (4.7%) would transport the burned to hospital.

The respondents had the greatest difficulties with mouth and throat burns. The majority of the inquired – 585 subjects (79%) would decide to call an ambulance. 415 subjects (56%) did not know how to manage it. Only 16 subjects (2.2%) would undertake circulatory-respiratory resuscitation. The answers were shown in Table 9.

Table 9. Mouth and throat burns management

Mouth and throat burns management	Women	Men
Undertaking artificial respiration	4	12
Calling out an ambulance	287	298
Loosening clothes	19	31
Giving oil to drink	23	16
Other methods	0	0
I do not know	294	121

Features that influence the severity of burn injuries were assessed correctly by 74 inquired (10%). 5% did not choose any answer. The rest - 629 subjects (85%) chose two replies: the depth of the burn and the nature of burning agent.

The next question considered factors influencing final results of burns treatment. 659 respondents (89%) listed them correctly: rapidity, extent and professionalism in first aid performing, appropriate qualifying to subsequent treatment and transport of the burned. 52 subjects (7%) chose only three first answers and 30 inquired (4%) did not know the answer.

First aid management in order to bring help to the burned turned out to be such an important issue for all the respondents, that they would like to popularise these skills in mass media.

Of all only 5 subjects answered correctly all the questions.

## DISCUSSION

Despite all the efforts undertaken throughout the ages to improve burns management and treatment in order to reduce mortality, they still remain serious medical and socio-economic problems. The essential prognostic values are: age of the burned, depth and breadth of the burn, the affected region of the body, coexistence of other injuries and illnesses, early undertaken and appropriate treatment (10).

Burn trauma is one of the most severe injuries. Statistics show that 2-2.5 fatal events for 100,000 inhabitants are caused by burn injuries. The results of the burned treatment, which is very often multispecialistic, long-term and costly, are mainly dependent on properly organised first medical aid, ability of performing medical procedures and also predicting and preventing subsequent complications (2).

Within 740 inquired only few were able to come to the burned rescue. The most often made mistakes included: making up a decision to supply the burn injury before evaluation of basic vital functions and calling out rescue service before smothering flaming clothes and removing the burned from a dangerous area.

It is necessary to undertake the following activities with the burned: 1) remove the burned from a dangerous zone; 2) smother flaming or smouldering wardrobe; 3) evaluate basic vital functions (consciousness, respiration, circulation); 4) supply external haemorrhage; 5) call out rescue service; 6) take clothes off from the burned; 7) dress burn injury; 8) protect the injured against the environmental influences (4, 6, 9, 11).

A large number of the respondents - 533 subjects (72%) considered pouring cold water to be the best way of burns management. However, the duration of cooling (5-10 minutes) according to respondents is certainly not sufficient (2, 5, 8). Many inquired beside the correct answer also marked "ointment, alcohol or dusting powder application etc." 447 subjects also signed "transport the burned to hospital". It proves their uncertainty in choosing correct wound supplying. Few subjects (187 individuals) knew that it was necessary to protect the burned region against infection by applying sterile dressing. Only 27 subjects would decide to immobilise the burned limb. That is an evidence that respondents do not possess sufficient knowledge about burns management. Proper therapeutic decisions in case of burn injuries play an important role in effects of subsequent specialistic treatment and the burned survival (1, 2, 3, 7, 8).

You are not allowed to remove clothes adhering to burned region - this rule is known, unfortunately, only by 281 subjects (38%). However, many of the inquired in order not to make a mistake chose an answer "I do not know". You are not allowed to remove burn bullas (8) - 355 subjects (48%) knew about it. You must not dress face injuries and after dressing other burn regions you should cover the injured with a blanket and if he is conscious give him some liquid to drink (11). There were fewer than 20% of such answers.

Only 11 respondents (1.5%) could assess breadth of burn injury. The so-called rule of "nines by Wallace" or "palm" principle is unknown to the respondents (3, 11).

The most important thing you should do with the chemical injury is washing up chemical agent with running water as soon as possible (8). 139 subjects (18.8%) would do that, but only 45 respondents (6.1%) would use neutralising substances. 528 of the inquired (71.3%), both these who undertake any rescue service and those who do not, would first of all transport the injured to hospital. 259 subjects (35%) do not know at all how to cope with this problem in such a situation.

Of all the respondents only 74 subjects correctly listed features that influence the severity of burn injury, that is: breadth and depth of burn injury, age of the burned, localisation of burn trauma, nature of burn agent and coexisting injuries (3, 6, 11).

The respondents found a lot of difficulties both with eye, mouth and throat burns management as well as sun and chemical burns. Almost 80% of subjects did not answer properly. Most often they chose: calling out an ambulance and transport the burned to hospital, in case of sun burn application of ointment or other domestic agents. Plenty of the inquired did not know how to manage the burns. But thanks to appropriate rescue activities and following rescue standards, the injured is given a chance for effectiveness of subsequent specialistic treatment.

## CONCLUSIONS

1. Only few citizens of Lublin are well prepared to perform first aid for the burned. Lack of such abilities lowers effectiveness of subsequent specialistic treatment.

2. Poor knowledge of premedical rescue activities followed by disability to make proper therapeutic decisions in order to bring help to the injured can cause severe complications and even death of the injured.

3. Principles of burns management should be widely spread in mass media and the lecturers training in rescue activities should be required experience and competence.

## APPENDIX

### Questionnaire

#### Part I

1. Sex:
  - female
  - male
2. Age:
  - 18 - 20 years
  - 21 - 30 years



- 31 - 40 years
- 41 - 50 years
- over 50 years

3. Education:

- clementary
- vocational
- secondary
- higher

4. Knowledge source of burns:

- popular magazines
- professional literature
- handbooks
- schoolbooks
- television programmes
- radio broadcasts
- classes training in first aid
- rescue trainings, Red Cross
- others .....

Part II

5. Put rescue activities in order of performing in emergency (1-7 points):

- remove the burned from a dangerous area
- smother flaming or smouldering clothes
- dress burn wound
- take wardrobe off from the burned region of the body
- call out rescue service
- supply external haemorrhage
- evaluate basic vital functions (consciousness, respiration, circulation)

How will you put out flaming clothes?

- tightly wrapping a blanket, a coat around the burned  yes  no
- pouring water  yes  no
- I do not know

6. Should adhering clothes be removed from the burned region of the body in your opinion?

- yes  no  I do not know

7. What will you supply the wound with?

- alcohol, iodine  yes  no
- oil  yes  no
- dusting powder  yes  no
- cold water  yes  no

- how long? about 5min, 10 min, 20min, 30min

- sterile dressing  yes  no
- ointment  yes  no
- fix burned limb  yes  no
- leave wound with no dressing  yes  no
- transport of the injured to hospital  yes  no
- use of other methods  yes  no

what? .....

9. Should burned bullas be removed in case of superficial burns according to you?

- yes  no  I do not know

What factors influence the severity of the burn in your opinion?

- breadth of burn  yes  no
- depth of burn  yes  no
- age of the injured  yes  no
- localisation of burn injury  yes  no
- nature of burn agent  yes  no
- others (what?).....

11. Are you able to assess the breadth of the burn?

- yes  no  I do not know

in what way? .....

12. The most important thing in case of electrication is .....

13. According to you, is the electric burn the severe one?

yes  no  I do not know

why? .....

14. What will you do in case of chemical injury?

- bathe burned region with water yes  no
- remove contamination yes  no
- immediately transport the injured to hospital yes  no
- use neutralising substances yes  no
- use sterile dressing yes  no
- use other methods yes  no

what? .....

15. What will you do in case of the eye burn injury?

- bathe eye with water yes  no
- apply dressing yes  no
- transport the injured to hospital yes  no
- use eye drops yes  no
- not allow to rub injured eye yes  no
- apply cold dressing on eye yes  no
- use other methods yes  no

what? .....

16. What will you do in case of the sun burn?

- apply ointment on burned region yes  no
- rub soap in burned area yes  no
- bathe burned area with water yes  no
- transport the injured to hospital yes  no
- use other methods yes  no

what? .....

17. What will you do in case of the mouth and throat burn?

- undertake artificial respiration yes  no
- call out an ambulance yes  no
- loosen clothes yes  no
- give oil to drink yes  no
- use other methods yes  no

what? .....

18. Do you regard giving liquids to drink directly after injury as appropriate?

yes  no  I do not know

19. According to you, should the burned be covered with blanket or aluminum foil after dressing burn wounds? yes  no  I do not know

20. What influences the results of immediate and final treatment?

- rapidity of first aid management yes  no
- extent and professionalism in first aid performing yes  no
- appropriate qualifying to subsequent treatment yes  no
- transport of the burned yes  no

21. Do you consider popularisation of first aid performing to the burned in mass media necessary?

yes  no

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Otrz.: 2000.09.27

## STRESZCZENIE

Każdego dnia wiele osób ulega różnego rodzaju oparzeniom - zarówno w pracy, jak i w domu - i można przyjąć, iż mimo stosowania rozmaitego rodzaju zabezpieczeń całkowicie nie uda się wyeliminować ryzyka występowania nieszczęśliwych wypadków. Z uwagi na fakt, że nie zawsze możliwa jest natychmiastowa interwencja lekarza, ważne jest, aby każdy dorosły człowiek posiadał podstawowe umiejętności udzielania pierwszej pomocy oparzonemu. Właściwie zorganizowana pomoc doraźna oraz umiejętności postępowania na miejscu wypadku mają ogromny wpływ na wynik leczenia oparzonych.

W celu ustalenia, w jakim stopniu mieszkańcy Lublina przygotowani są do udzielania pierwszej pomocy oparzonemu oraz poznania, jaka jest znajomość zasad postępowania z oparzonymi na miejscu wypadku i stwierdzenia czy udzielana pomoc przedmedyczna jest skuteczna, przeprowadzono badania ankietowe, którymi objęto 740 osób. Wyniki badań wykazały, że niewielu mieszkańców miasta Lublina jest w pełni przygotowanych do udzielania pierwszej pomocy oparzonemu. Spośród 740 ankietowanych tylko 5 osób odpowiedziało prawidłowo na wszystkie pytania ankiety. Słaba znajomość zasad pomocy przedlekarzkiej oparzonemu, a co za tym idzie nieumiejętność właściwego udzielania pierwszej pomocy, może być przyczyną ciężkich powikłań lub śmierci ранego. Należy szeroko propagować zasady udzielania pierwszej pomocy oparzonemu w środkach masowego przekazu, a od osób prowadzących szkolenia z tego zakresu wymagać kompetencji i doświadczenia.

