

Retrospective assessment of treatment cost of patients under the influence of alcohol at Emergency Department at University Hospital no 1 name Norbert Barlicki in 2010

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Summary

Introduction: People who abuse alcohol and who are frequent patients of emergency hospital departments cause serious trouble from a diagnostic perspective. Without specialist examinations it is difficult to evaluate whether neurological disorders are caused by patient's illness or by intoxication.

For differential purposes one uses expensive diagnostic examinations funded by public money. In the following article the authors would like to show the costs of treating intoxicated patients at Emergency Department at University Hospital no 1 name Norbert Barlicki in 2010

Material and methods: 250 histories of patients were analysed in retrospection. They were seen at Emergency Department of University Hospital no 1 name Norbert Barlicki, in 2010. All these patients were diagnosed as under the alcohol intoxication or there was annotation that patient is under the influence of alcohol.

Results: Total cost of patients treatment among tested group is 74619 PLN. Average cost of treatment of each patient is 298.5±75.5 PLN. Average value in RTS scale was 7,70±0,5 for max.

Conclusions: Among the tested group of people under influence of alcohol, head injuries were examined with use of tomography, although most cases they were slight injuries.

Key words: alcohol, treatment costs, injuries, Emergency Department.

Introduction

Drinking alcohol is considered as one of the main factors of unintentional injuries, fatal accidents or deliberate body damage [1]. It's because of the fact that alcohol is legal, easily available, cheap and common. Overuse of alcohol harms your eyesight, disturbs motor coordination and

increases probability of body injuries. Alcohol extends time of reaction, judgement of situation and ability to fast and instinctive action in situation of life threat. Influence of alcohol may „hide” consciousness disorder, hinder a contact with patient and make difficult the precise inter-

view [2,3]. Most difficult complication includes traumatic brain injury (TBI) which may cause decreased or altered state of consciousness, from slight dizziness to coma, can cause disability of cognitive skills or general physical functioning. Main goal of our studies was the assessment of costs of medical procedures which were carried out on patients under the influence of alcohol. Also, we assessed if these patients were traumatic patients, if yes, with what type of injuries they were referred to ED. Authors also tried to evaluate what was the clinical state of patients and the degree of the injuries.

medicines and infusions. Costs of particular procedures were based on 2010 medical procedures and service price list is available at SOR where the examination was taken. Price of drugs and infusions were taken from the price list in the hospital's pharmacy, analogically as price of dressings, needles and syringes. In this analysis we didn't consider the cost of patient's stay in the hospital, similarly we didn't consider health staff's salaries and the time they need to spent per one patient (cost of medical examination was included as well as every medical procedure).

Name of procedure	Number	Costs (PLN)	Details
Medical examination	247	30	-
computer-aided tomography	238	220	-
Surgical stitch (includes cost of local anaesthesia)	43	8.95	Suture with needle – 5 PLN, gauze and bandages – 1 PLN, sterile gloves – 0,25 PLN, needle – 0,25 PLN, syringe 10 ml – 0,25 PLN, ampule of lignocaine 1,60 PLN, ampule of physiological saline 0,35 PLN.
RTG X-rays	44	35 – 65	Price depends on number of usage.
Wound dressing	51	1,02	Gauze pad – 0,60 PLN, bandaże – 0,40 PLN, gloves – 0,02 PLN.
Lab tests	290	8 – 17	Price depends on type and description of the test.
EKG	17	15	-
USG	20	65	-
Specialist's consultation	215	36	-

Materials and methods

250 histories of patients were analysed in retrospection. They were seen at Emergency Department of University Hospital no 1 name Norbert Barlicki, in 2010. All these patients were diagnosed as under the alcohol intoxication or there was annotation that patient is under the influence of alcohol. The assessment of level of injuries was based on the anatomic scale AIS-ISS (Abbreviated Injury Scale – Injury Severity Score), and the clinical state was defined with the use of physiological scale RTS (Revised Trauma Score). Appraisal of stay of each patient was described by the sum up of costs of all procedures and the examination that were done.

There were also consider costs of materials used, such as dressings, needles, syringes,

Also, there wasn't included the cost of wear and absorption of medical gear. When we calculate the cost of procedures which aren't on the price-list (like: putting stitches or dressing wounds), we need to add standard consumption of materials such as dressings, ampules of local anaesthetics and surgical thread that are used during particular procedure. For instance, if we consider that most of the injuries was slight, calculation cost of dressing wounds included: 1 piece of bandages, 2 pieces of sterile gauze and 2 pairs of latex gloves. Costs of particular procedures you can find in the table number 1.

Results

Total cost of patients treatment among tested group is 74619 PLN. Average cost of treatment of each patient is 298.5±75.5 PLN. Average value in RTS scale (counted with formula $RTS=0.9368$

GCS + 0.7326 SBP + 0.2908 RR) was $7,70 \pm 0,5$ for max. value 7,8408. This tells us about the relatively good state of the injured ones. Average amount GCS was $14,268 \pm 1,47$. Among the tested group, 28 people were admitted without body injuries, whereas in histories of 222 people there were written down occurrence of injury. Most of the patients (167) had superficial head injuries (Fig. 1).

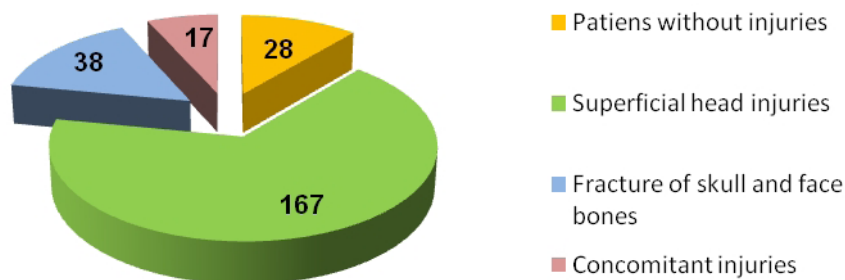


Figure 1: Classification of injuries

Fracture of skull and face bones were less common (38 cases). Other injuries are concomitant injuries in other parts of the body. Surprising is the fact that the average cost of treatment of patients with body injuries – $294,92 \pm 74$ PLN was insignificantly lower than treatment of patients without body injuries $318,31 \pm 82$ PLN. Average age in the tested group was 45 ± 17 years old. Most of them ($n=205$, 82%) were men. There were 22 women, which is 9% of the whole tested group. In case of 23 patients (9%) there couldn't be found any medical documentation (John Does), so we couldn't notice further sex classification. Most frequent procedure were laboratory tests (290), medical examination (247) and computer-aided tomography (238).

Discussion

Alcoholism is a common problem practically in every society. Total public treatment costs of people who are under the influence of alcohol are substantial. This problem doesn't touch only our country but the whole continent [4, 5, 6]. In literature, we can find many reports that draw similar conclusions. Health insurance system in our country also secures people who are not insured. For treatment of this people pay every taxpayer. On the other hand, these kind of people cannot be left alone and without any care. Authors think that there need to be discussed approach to a situation of insured people, alike the

schemes of proceedings. People who are under the influence of alcohol are a challenge for health service, they quite often make diagnostically difficulties because of lack of sufficient interview. These patients are frequently show act aggression towards medical Staff [7,8]. We have noted that average costs of procedures are lower than in hospitals in USA, where they are estimated as 2400%. The reason may lie in differences of health

care system and in prices of particular procedures [9]. Similar cost of this kind of treatment can be observed in Belgium €541.32, if we consider the fact that in the Verlesta's & co. Article they showed not only the cost of medical procedures, but the whole cost of stay in a hospital [10].

Considering a medical state evaluation we can make conclusion that patients in the tested group were admitted in a relatively good clinical state. Similarly to other literature that deals with classification of injuries at SOR, the GCS and RTS averages we observed were considered as superficial injuries and clinical state as good [11]. As it was mentioned before, influence of alcohol may „mask” some sickness states, hence the number of expensive diagnostics tests. Similar results were shown by other authors, e.g. in Timler's studies, alike the above studies, the most frequent injury among patients under the influence of alcohol was superficial head injury. If we look into the sex scheme, we can see that the majority of patients under influence of alcohol were also men [12]. Total public costs that created by people under influence of alcohol are probably much higher than estimated costs of treatment. It is caused by the fact that most of them is not insured and everyone of us pays for their diagnostics and treatment. Maybe it is reasonable to take into consideration the change of regulations of emergency first aid for people under the influence of alcohol, thus hospital would not bear costs generated by patients who are not always in

a hard medical state or seriously injured but only under influence of alcohol.

Results

1) Among the tested group of people under influence of alcohol, head injuries were

examined with use of tomography, although most cases they were slight injuries.

2) During the test period, the men who was under the influence of alcohol were more often diagnosed at SOR than women, mostly because of the head injuries.

References:

1. Cowperthwaite CM, Burnett GM: Treatment course and outcomes following drug and alcohol-related traumatic injuries. *Journal of Trauma Management & Outcomes* 2011, 5:3.
2. Hampel R: Wstrząśnienie mózgu – problemy kliniczne i orzecznictwo. *Orzecznictwo Lekarskie* 2010,7(2) 127-133.
3. Stewart S, Swain S: Assessment and management of alcohol dependence and withdrawal in the acute hospital: concise guidance. *Clin Med.* 2012 Jun;12(3):266-71.
4. Jean-Bernard Daepfen JB: Screening and brief alcohol interventions in trauma centres. *SWISS MED WKLY* 2003 ;133:495–500.
5. Marlon P. Mundt and Larissa I. Zakletskaia: Prevention for College Students Who Suffer Alcohol-Induced Blackouts Could Deter High-Cost Emergency Department Visits. *Health Aff (Millwood)*. 2012 April; 31(4): 863–870.
6. Greene J.: Serial Inebriate Programs: What to do About Homeless Alcoholics in the Emergency Department. *Annals of Emergency Medicine* 2007 Jun;6(49).
7. Holzer BM, Minder CE, Schätti G: Ten-year trends in intoxications and requests for emergency ambulance service. *Prehosp Emerg Care.* 2012 Oct-Dec;16(4):497-504.
8. Shibayama M, Cho T, Ino A: Investigation of patients suspected of drinking, who visited emergency department, and their negative influence on emergency medical system. *Nihon Arukoru Yakubutsu Igakkai Zasshi.* 2011 Oct;46(5):436-45.
9. Lee MH, Mello MJ, Reinert S.: Emergency department charges for evaluating minimally injured alcohol-impaired drivers. *Ann Emerg Med.* 2009 Oct;54(4):593-9.
10. Verelst S, Moonen PJ, Desruelles D.: Emergency department visits due to alcohol intoxication: characteristics of patients and impact on the emergency room. *Alcohol and Alcoholism.* 2012 Jul-Aug;47(4):433-8.
11. Karwan K.: Ocena chorych po urazach wielonarządowych leczonych w szpitalnym oddziale ratunkowym *Pol. Merk. Lek.*, 2009, XXVII, 160, 296.
12. Timler D, Misiak A, Pająk M i wsp.: Retrospektywna analiza przyczyn oraz obrażeń towarzyszących wstrząśnieniu mózgu wśród pacjentów przyjętych na Oddział Chirurgii Ogólnej, Naczyniowej i Medycyny Ratunkowej WSS im. M. Kopernika w Łodzi. *Acta Clinica et Morphologica* 2007; 1; 10; 20-26.