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**Ethanol intoxicated patient in the ED
– does it always mean a trauma patient?****Zenon Truszcwski, Anna Maria Caban, David Zira**

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**Abstract**

Background. For many years we believed that ethanol is a major risk factor for trauma. We rarely realize, that it is also the reason of symptoms unrelated to injuries. **Aim.** To assess the major complaints and causes of hospitalization in patients under the influence of alcohol diagnosed in the emergency department. **Material and methods.** We analyzed the medical records of 278 patients under the influence of alcohol hospitalized in the Emergency Department from October 2011 to June 2012. Then assessed the causes of hospitalization divided by gender, age and the level of alcohol. We also observed the day of the week, in which the event occurred and the further treatment. **Results.** Among 278 patients under the influence of alcohol, most were male. The highest numbers of patients were diagnosed on Saturday. They were mainly middle-aged, the oldest patient was 84 years old, the youngest 18. In trauma patients group were 136 persons and in “non-traumatic” group 142. The main reason for hospitalization of the „trauma patient” was head injuries and multiple trauma. The “non-traumatic” group was dominated by people with problems arising from a significant degree of intoxication. However, a large group of patients were suffering from chest pain, diagnosed because of fainting or abdominal pain. **Conclusions.** A large group of patients under the influence of alcohol are injured. However impact of alcohol on chronic diseases can also force to the ward admission. So we should carefully diagnose our patients, even if we think they are only intoxicated.. *Anestezjologia i Ratownictwo 2015; 9: 30-34.*

Keywords: emergency department, ethanol intoxication, systemic diseases, trauma

Introduction

According to the data of the Central Statistical Office from 2009 in Poland 73.9% of the population over 15 (84.5% of males and 67.2% of females) were defined as alcohol drinkers [1]. The above data show that the people under influence of alcohol represent a large percentage of the general population, and consequently a significant number of patients diagnosed in emergency departments and admissions units. Also a considerable number of emergency medical services (EMS) interventions are associated with help provided to persons after alcohol intake.

For many years a belief has prevailed that ethanol is a major risk factor for trauma and cause of death of many young people as a result of injuries [2]. When

imagining a person under the influence of alcohol in the emergency department (ED), we usually see a patient who is male and suffers from a head injury, as a consequence of a fall, a fight or after a traffic accident [1,3,4]. However we rarely consider that alcohol could also be the reason for symptoms unrelated to injuries - whether in the form of exacerbation of chronic diseases or as the cause of new symptoms.

Most of the previously published papers and research results analyze different types of injuries in patients under the influence of alcohol [2,5], or assess sobriety of patients who had suffered a trauma [3-7]. Still, there are but a few publications looking at the problem another way, determining the participation of internal origin symptoms among all intoxicated patients diagnosed in the ED.

The Emergency Department of Infant Jesus University Hospital is located in the center of Warsaw. This ensures a large variety of different patients. Residents of the surrounding neighborhoods, employees of the nearest offices and tourists from the nearby Central Station – they all are our ED patients. There are also homeless patients delivered by the EMS. On the other hand, very wealthy patients are admitted as well. Among all of these groups we meet people after consumption of alcohol.

Material and methods

We analyzed medical records and laboratory test results of 278 patients under the influence of alcohol hospitalized in the Emergency Department from October 2011 up to the end of June 2012. Then, we determined the reasons for hospitalization (injury or systemic disease) account taken of gender, age and the level of alcohol in samples of the venous blood serum (examined in the hospital laboratory). We also took note of the day of the week when a given event occurred, and further treatment (admission to the hospital ward, discharge, leaving the ED, lack of consent for hospitalization or transportation to *SODON* (Warsaw center for alcohol-intoxicated persons).

Then, based on the obtained information, patients were divided into 2 groups: trauma patients and patients with systemic disorders. The first group included patients with head or facial trauma, multiple trauma, limb injuries and stab wounds. Into the “non-traumatic” group we allocated patients hospitalized because of intoxication only, and patients under the influence of alcohol with other systems/organs symptoms (account taken of their location), as well as patients after a suicide attempt.

To estimate the content of alcohol, venous blood serum samples collected at the ED were analyzed in the local laboratory. The level of alcohol was determined by means of the enzymatic method.

The results were statistically analyzed using the MS Excel - calculating the quantitative distributions for particular groups of patients.

Results

During the period of our study 278 patients intoxicated with alcohol were admitted to the ED. To a large extent these were males - 234 cases (84.2%), whose

average age was 41 - the oldest was 80, and the youngest was 19 y. o. In 20 cases age was not determined.

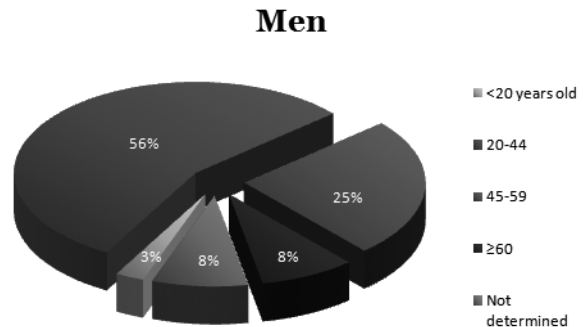


Figure 1. Age of men

The average age of 44 females was 36 - the oldest was 84 y.o., the youngest was 18, in two cases the age was undetermined.

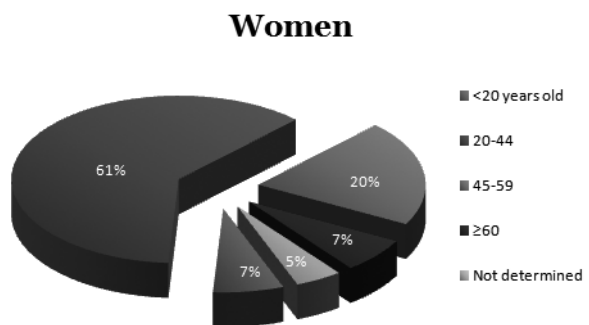


Figure 2. Age of women

The largest group of patients were admitted on Saturdays - 62 and Sundays - 45, the smallest on Tuesdays - 17 and Wednesdays - 26. The distribution of the examined patients was different in weekdays (from Monday to Friday) – 60.8% than in weekends – 39.2%.

The average level of alcohol in the blood samples was: 2.52‰ in the female group and 2.87‰ among males. The level more than 4‰ has been noticed twice in women and twenty seven times in men.

Patients were divided into two groups according to the initial diagnosis at admission. We qualified the total of 136 patients to the traumatic group (which represented 48.9% of all patients under the influence of alcohol). In the “non-traumatic” group there were 142 patients (51.1%) with systemic diseases, as well as patients hospitalized due to ethanol intoxication and disorders associated thereto.

Among traumatic patients the largest number

were diagnosed with a head trauma – 101 (74.3%) - including craniofacial trauma (such injury had been suffered by twenty three person). A smaller group of patients suffered from a multiple trauma - 23 (16,9%). The patients experiencing limb injuries (contusion, wounds, fractures) and diagnosed with stab wounds represented 7 (5.1%) and 5 (3.7%) respectively.

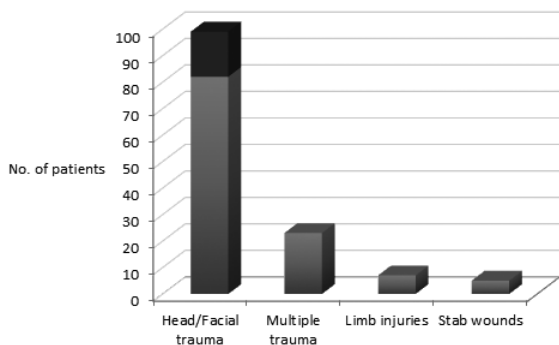


Figure 3. Diseases in traumatic group

After a preliminary diagnosis in the ED a number of 38 patients were admitted to the Infant Jesus Hospital departments, and two of them were sent to other hospitals. Most patients were admitted to the Department of General Surgery - 25, Department of Maxillofacial Surgery - 4 and Department of Orthopedics and Musculoskeletal Traumatology - 30. Other units (Department of Internal Medicine, Division of Neurosurgery, Intensive Care Unit, Department of Psychiatry) admitted individual patients.

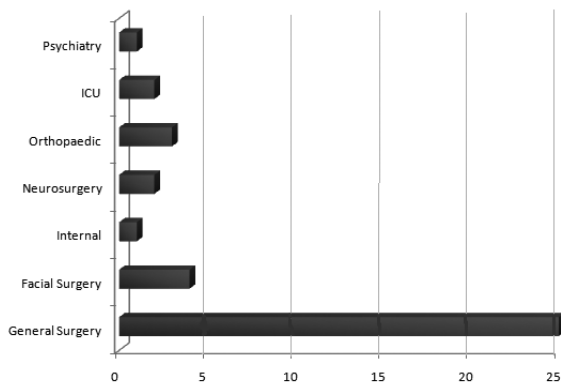


Figure 4. Hospitalizations in traumatic group

Four patients did not agree to be hospitalized, twenty left the ED. Eleven patients were transported to SODON to sober up. The largest group of patients – 61,

after examination in the emergency department did not require further hospitalization and after having reached an acceptable value of alcoholemia, were fit to be discharged home.

Among the “non-traumatic” patients, a significantly dominant group were those admitted due to intoxication and related symptoms (52.1%). However, considerable groups of patients presented other symptoms, usually of internal origin such as: chest pain or coronary artery disease exacerbation (7.7%), fainting (8.5%) or abdominal pain (5.6%). Another large group were psychiatric patients – after a suicide attempt (7%) or after drugs abuse (2.8%). Another group included persons with carbohydrate metabolism disorders: hyper- (2.1%) and hypoglycemia (1.4%). Single person were diagnosed with poorly controlled hypertension, dyspnea, haemoptysis, headache, stroke, upper gastrointestinal tract bleeding, liver cirrhosis, tetany, hypothermia, disturbances of electrolytes level, renal colic, retention of urine, convulsions or mandibular abscess.

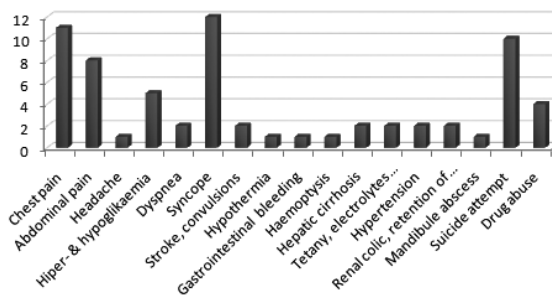


Figure 5. Diseases in non-traumatic group

Some of those patients required further hospitalization. Eight patients were admitted to the Psychiatric Ward, two to the Department of Internal Medicine, one to the Department of General Surgery, one to the Department of Maxillofacial Surgery, and three were transferred to other hospitals.

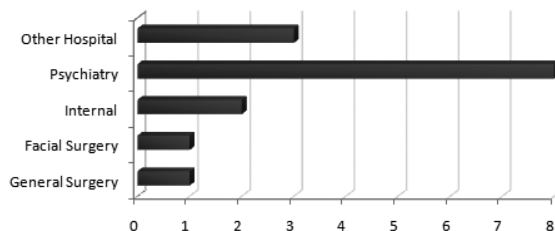


Figure 6. Hospitalizations in non-traumatic group

Ten patients, after all risk to their life and health had been excluded, were taken to sober up to *SODON*. Some of the patients left the ED - 23, but the largest group were discharged -94.

Discussion

Alcohol consumption is a significant risk factor of injuries. In Poland every third injury is reported in alcohol-intoxicated persons. Similar statistical data are reported for other countries in the world, ranging from 25 to 53%.

It is obvious and common for the personnel of emergency ambulance services or emergency medicine hospital departments to deal with cases of injuries in intoxicated individuals [8,9]. It is uncommon to perceive an intoxicated person to be in a health-threatening condition due to other causes, including internal pathologies. It is relatively easy to diagnose an injury in an intoxicated patient. Even if it is impossible to take a history, a detailed physical examination may reveal posttraumatic skin lesions, limb deformities, oedema, visible bleeding and wounds. Diagnostic difficulties may occur in case of internal traumas in deeply unconscious patients. In order to confirm or rule out such a risk, the majority of doctors order a computed tomography (CT) scan or an ultrasound.

It is more difficult to diagnose intoxicated patients who are unable to answer questions or spontaneously report symptoms of internal pathologies. Some serious conditions, such as a myocardial infarction, pulmonary embolism or metabolic disorders may not have unambiguous manifestations. Moreover, they may be masked by the effects of alcohol intoxication. Doctors who are attending injured patients may not take other concomitant diseases into consideration, especially if the patients impede or act in an off-putting manner when it comes to diagnostic work-up and treatment [1].

This study aimed to assess whether the majority of alcohol-intoxicated patients in emergency departments are attended to because of injuries. It was analysed how many of those patients had internal diseases and what kind of diseases they were. The analysis also included the epidemiology of admissions in order to draw conclusions concerning the organisation of work of emergency departments.

Men constituted the majority of intoxicated patients during the analysed period. The results were similar to available statistics, according to which every

day 2.3 million of men and 1.5 million of women are drunk in Poland. The distribution of hospitalization on individual days of the week was also similar to findings of other studies. The majority of patients were admitted at weekends and bank holidays. The results concerning patients with injuries and internal diseases were less obvious. Both groups were very similar, except that the "internal diseases" group included patients with the diagnosis of intoxication, which resulted in the overestimation of the number of patients. The division of patients into "intoxicated with an injury" and "intoxicated with a concomitant internal disease" groups would demonstrate that injuries are twice more common in intoxicated patients than internal diseases.

Head and face injuries were the most frequently reported. These results are different from statistical data, according to which limb injuries are most common [10]. Mental disorders manifested as a suicide attempt was the most common reason for qualifying the intoxicated patient for the "internal disease" group. Loss of consciousness, signs of acute coronary syndrome and abdominal pain were other, less common reasons. These results did not fully comply with the statistics of ED admissions where the most common internal pathologies are a coronary heart disease, hypertension and circulatory insufficiency.

Conclusion

Among the patients admitted to the ED after alcohol intake there are not only people after a trauma but also those presenting symptoms of systemic diseases.

Therefore, the examination of all intoxicated persons in the ED should not only include the effects of an injury, but also evaluation of the already existing chronic diseases or new diseases concealed or caused by alcohol consumption.

Conflict of interest

None

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