

THE DYNAMICS OF WORK CAPACITY IMPAIRMENT IN VICTIMS OF ROAD ACCIDENTS IN THE CASUISTRY OF SIBIU COUNTY FORENSIC SERVICE. COMPARATIVE ASSESSMENT AND PERSPECTIVES

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Keywords: work capacity, disability, road traffic injuries, forensic medicine

Abstract: Expertise of work capacity in traumatic victims of road accidents is an important component of medical and social dimension of road accident global consequences. The study aims at providing a dynamic picture of the extent and characteristics of the pathology secondary to road accidents resulting in impaired work capacity in the Sibiu County, and also at an overall perspective based on current trends. **Materials and methods:** the study combined methods of statistical descriptive study and qualitative research methods. **Data collection period** is of 10 years. **Results:** the study revealed that although the share of work in the victims of road accidents and profile lesion and treatment have remained relatively constant over a decade and a half, there have been significant and alarming changes in terms of traumatic injuries severity and their impact on the social and occupational functionality of the patient. The share of people falling in various degrees of disability has increased by 10 percent, the number of people who have lost work capacity doubled and the number of people who have lost their jobs as a result of road accidents and needed personal carer tripled.

INTRODUCTION

In the last 5 years, Romania recorded a steady trend of reducing the number of traffic accidents. However, in 2014, Romania ranked first in mortality from road accidents in Europe, with an average of 91 deaths per one million inhabitants, almost double than the European average (51 persons per one million inhabitants), surpassing Latvia in front of which it was a year ago.(1,2,3)

In 2011, in the field of transportation and road safety, the European Union (EU) has set an ambitious goal for the decade 2013-2020, that of halving the number of deaths from road accidents.(3,4) One of the proposed strategies are based on focusing the attention of non-fatal serious injuries.

An important issue in developing results-based strategies is that the current figures are general estimated, misreported and underreported, therefore the collected data cannot be reliable and comparable at European level.

Only in 2013, EU countries agreed on a standard medical terminology regarding non-fatal health consequences of road accidents and the methods of collecting and centralizing data from police and hospital records. The first integrated data began to be collected in 2014, the first European reports following to be published in 2015.(5,6)

The repercussions of civil and criminal nature of traffic accident offer an overview of the impact severity of road accidents at society and individual level. Forensic evaluation of a disability produced as a result of road accident is needed in order to be considered as belonging or not to the criminal law, while the existence of a disability with decreased work capacity refers to material damages recovery in civil terms.(7,8)

PURPOSE

The study aims at providing a dynamic picture of the extent and characteristics of the pathology secondary to road

accidents resulting in impaired work capacity, also an overall perspective on the current trends.

MATERIALS AND METHODS

Method: combination of quantitative and qualitative methods (retrospective descriptive study, systematic analysis, case analysis).

Study period: 10 years (2004-2013).

Data source: medical records and forensic documents from the archive of Sibiu County Forensic Service, belonging to the victims of traffic accidents

The research outcomes are comparatively evaluated to a similar study performed on the casuistry of the institution during 2000-2006.

Study limitation: may be attributed to the lack of superposability in terms of years of study, an inconvenience with little effect since the research was conducted in both studies by researching whole documents.

RESULTS

During 2004-2013, there were 1 508 forensic works to victims of road accidents, accounting for almost 9% of all work performed, the works share addressed to the victims of road accidents being very close to that of the previous study (8.5%).

About 90% of the victims of road accidents required surgical treatment. Of these, more than half have required conservative orthopedic treatment, a quarter of them were subjected to neurosurgical interventions and interventions 10-15% were subject to general surgery and orthopedic surgery. The number of days of hospitalization was between 2 and 10 days in two thirds of patients and between 11 and 20 days for a third of them.

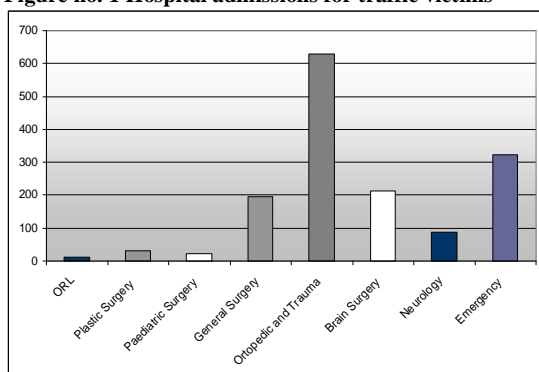
Almost 90% of patients needed surgical interventions, half of them underwent conservative orthopedic treatments.

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Clinical and statistical parameters of the traumatic pathology secondary to road events suffered less significant variations in both studies.

Besides the penal consequences of a crime against life and body integrity of a person, be it intentionally or negligently produced, after solving the case in criminal law terms, sometimes it necessary to repair the material damage created. The person affected may request material compensation through the civil courts on regarding: the temporary work incapacity, health care costs, wage gap in case of changing profession or the providing permanent salaries for permanent loss of working capacity.

Figure no. 1 Hospital admissions for traffic victims

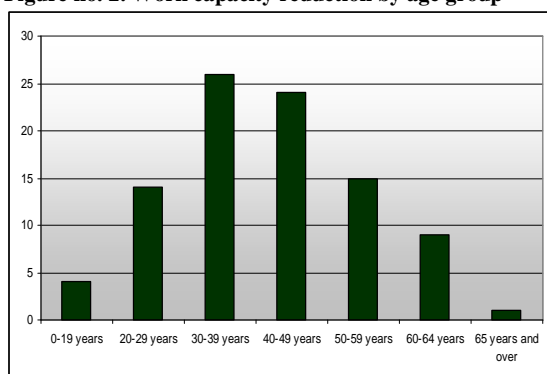


Expertise of work capacity represented 6% of total forensic activity regarding the victims of road accidents, by about 2% less than the number of work capacity expertises carried out with the same purpose in an observational study a decade ago. In 84% of cases, work capacity has been reduced by over 10%, a value higher to that identified in the previous study, which suggests that while traffic accidents had a downtrend trend, severity level has increased considerably.

In the decade 2004-2013, the percentage of male patients decreased by 3 percent (67%) compared to the previous study, due to the intensification of traffic events in women. Also, it increased by over 10 percent the reducing of Work Capacity in patients from rural areas (67% versus 76%), mainly in the context of increasing rural road transit to jobs in urban areas, and the increasing number of vehicles and traffic participation of rural residents.

Between 2004 and 2013, work capacity reduction affected mostly the age groups between 30 and 49 years old, shifting to more mature ages the traumatic morbidity peak, identified as being maximum in the age group of 20-49 years old, in the last decade.

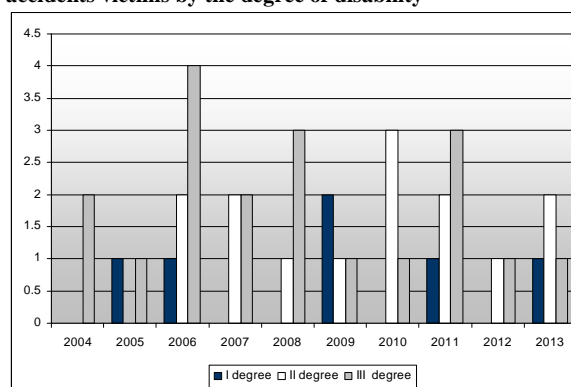
Figure no. 2. Work capacity reduction by age group



Of all patients with reduced work capacity, 42% were assigned to different degrees of disability, representing a significant increase in the severity of traumatic pathology as compared to the previous decade (37%). Also, there have been significant changes in the weights of the three degrees of disability, which reflects an alarming rise of the severity of the health consequences of traffic accidents.

If in the past decade, most disabled patients corresponded to III degree of disability (nearly 80%), in the period 2004-2013, it affected only 49% of the group, with the increase of injuries severity that led to higher degrees of disability. It was observed an increase by 20 percent of the number of victims who have lost their jobs as a result of road accidents (II degree of disability), from 16% to 36%. The most significant and alarming increase was noticed in the number of people who have lost their jobs and required a caregiver (I degree) with the upward variation by 10 percents in the period 2004-2013 (from 5% to 15%).

Figure no. 3. Dynamics of work capacity reduction in road accidents victims by the degree of disability



DISCUSSIONS

Comparative research data analysis, the systematic review of the literature and case studies allowed a diagnosis of the status of health consequences of road accidents resulting in disability in Sibiu County and also an assessment of the perspective for the coming years.

The characteristics of road infrastructure utilisation and road users profile has important implications for planning of preventive measures within the causal tripod: individual-vehicle-road at county level. From this point of view, Sibiu County holds the same pattern observed in the developed countries, characterised by a high proportion of four wheels vehicles in the road traffic. Passengers' vehicles make up the majority of road accident victims.

Sibiu County aligns downward the trend of mortality and morbidity through accidents of the last decade, with a decline of about 2.5% per year in the number of road events and 11% per year of the deceased of seriously injured.(9) The number of road traffic related offenses fell by about 3 000 / year. The year 2014 recorded a rebound effect of victimology road but with the massive increase in the number of deaths and serious injuries from the previous year, with seven fatalities and one seriously injured in 2013, 13 fatalities and 70 serious injuries in 2014.(9,10) Excessive and inadequate speed and not granting priority remain the main causes of mortality and morbidity in the last decade.(9,10)

On the other hand, the road network of Sibiu, characterized by mixes of traffic and speeds in poor conditions in terms of safety, contributes death in accident rate, unlike the

situation in the high-income countries, with a large number of built kilometres in safe traffic conditions.

Case analysis of road accident victims along with representatives Sibiu County Police Inspectorate reveals that traffic law is insufficient to ensure road safety and its implementation is poor.

If current trends continue at territorial level, it is likely that the annual numbers of deaths and disabilities from road traffic to increase. The main causes of these negative trends identified by analyzing morbidity by road accidents: increasing density of road users per sector amid intense economic development of the county, increasing the number of vehicles / person and inadequacy of infrastructure and road safety systems traffic characteristics.

A grim perspective is registered in terms of the consequences at individual, family and society level, difficult to quantify due to the multiple implications and related costs, but also psychological damage of failure, devastating, but unquantifiable in assessing disability. In our research, the share of economically active ages and socially invalidated by road accidents exceeds the figures mentioned by literature by 15% (11), which highlights a failure in all intervention and human factors involved in road traffic accidents.

CONCLUSIONS

- Between 2004 and 2013, as compared to the last decade, forensic activity for the victims of road accidents was constant, representing approximately 9% of total forensic activity.
- Comparative research on the clinical parameters of traumatic pathology identified no significant differences in terms of injury pattern and medical services provided, most patients being hospitalized on Orthopaedics and Trauma Units (two thirds of the sample), followed by Neurosurgery ward (about one third) in both studies.
- Research has shown that, despite the downward trend of road accidents, the traumatic pathology secondary to road accidents significantly increases in severity. Total number of patients assigned to disability degrees (I, II, III degree) is 10% higher than that identified in the previous study.
- Establishment of specific disability degree suffered major changes in the course of a decade, with increasing severity of traumatic injuries that led to in higher grades. The number of patients included in the II degree of disability has doubled and the number of persons included in the I degree of disability has tripled.
- The analysis of trends in morbidity secondary to road accident in Sibiu highlights the need for multi-sectoral interventions to counter the growing severity of these consequences.
- The variety road infrastructure pattern of usage and a restrictive budget for road safety can be some of the causes of failures in achieving the EU objectives for the period 2013-2020 regarding the road safety, both at regional and national and county level.
- Although the objectives in the field of road traffic in the EU are common, and should be common, not to be overlooked as a critical factor for success, a preventing strategy adapted to real needs of regional and local road traffic.

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