56 - EVALUATION OF TRAUMA SEVERITY ON MOTORCYCLE DRIVERS INVOLVED IN TRAFFIC ACCIDENTS ATTENTED TO IN A HOSPITAL IN NATAL/RN

GLAUCEA MACIEL DE FARIAS
WANESSA CRISTINA TOMAZ DOS SANTOS BARROS
CRISTIANE DA SILVA RAMOS
LUIZ ALVES MORAIS FILHO
MIRNA CRISTINA DA SILVA FREITAS
Universidade Federal do Rio Grande do Norte, Natal/RN, Brasil
E-mail: glauceamaciel@gmail.com

INTRODUCTION

An increase in the amount of running vehicles has occurred on a global scale, but the development of road systems and urban planning has not followed this growth, leading to sound and atmospheric pollution, increase in length of commute time and traffic jams (MARIN; QUEIROZ, 2000).

To all cited problems, we can add significant aggravations to health in the form of traffic accidents (TA's). In Brazil, as well as in other countries, these events deserve special attention among external causes (EC's), which are a critical and worrying issue on statistics of deaths and handicaps, especially on young male subjects (OLIVEIRA; SOUZA, 2004).

According to Marin and Queiroz (2000), the amount of people disabled by TA's has increased significantly. Among the justifications for this phenomenon, we find an increase of occurrences involving young subjects with better health conditions and thus greater chances of surviving severe accidents; faster vehicles; growth of the amount of heavy vehicles in operation; advances on reanimation medical techniques and on the quality of pre-hospital care.

In this context, as a consequence of man's evolution and an alternative to these problems, a gradual increase in the use of motorcycles can be noticed over the last few decades, as this vehicle has earned greater acceptance and approval by the population, due to its agility, economy and reduced price (OLIVEIRA; SOUZA, 2003).

In that sense, studies show the increase in the amount of motorcycles in the country has become a cause for worry, considering their vulnerability and exposure to accidents, due to the imbalance in strength upon impact on a larger vehicle. This happens because the motorcycle does not have an adequate structure with which to protect the driver, causing all the energy from the impact to be absorbed, ejecting him/her off the seat (OLIVEIRA; SOUZA, 2004)

Farias (1995) understands the growing number of surviving accident victims, as well as the magnitude of their consequences, as a reason to seek knowledge of the types of handicap created by these events, leading to the use of adequate methods that can prevent them.

Considering, thus, the importance of these consequences as well as the need to prevent them, health researchers and professionals have been working in the creation of anatomical and physiological scores that may help the interpretation and evaluation of trauma severity.

To that end, Whitaker; Gutierrez; Koizumi (1998) stress that proper evaluation of trauma severity can increase the chances for the victims' survival on the way to the hospital. Scores have thus been created to help assess the situation of patients with multiple injuries (SALLUM; KOIZUMI, 1999).

Among these scores, we stress the importance of the Abbreviated Injury Scale (AIS), an evaluative system that categorizes each injury resulting from trauma by body region and establishes a score that rates the gravity of the specified injury. After the rating of the AIS, another score can be reached, the Injury Severity Score (ISS), based on the diagnosing of injuries confirmed through complementary exams. Surgical operations or direct inspection (SALLUM; KOIZUMI, 1999).

Another rating often used is the Glasgow Coma Scale (GCSI), created in 1974 and adopted worldwide as a standard of evaluation of consciousness level and classification of cranial-encephalic trauma (CET) (KOIZUMI, ARAÚJO, 2005).

These ratings' main contribution is the possibility of evaluating and comparing both the assistance being offered and the effectiveness of measures taken to prevent the worsening of injuries (IMAI; KOUZUMI; 1996; SALLUM, KOIZUMI, 1999).

Starting from the presupposition that the knowledge about the accident and the evaluation of trauma severity on motorcycle drivers can contribute to the planning of assistance after the traumatic event through the pre-hospital treatment to rehabilitation, we ask: what is the severity of injuries and trauma on motorcycle drivers, affected by traffic accidents?. From the questions posed, we could set the following objective: to evaluate the severity of trauma on motorcycle drivers, affected by traffic accidents.

MATERAL AND METHOD

This is a descriptive-exploratory study with quantitative approach, performed on the Monsenhor Walfredo Gurgel hospital complex (HMWG), within which we explored the Clóvis Sarinho emergency room, the polytrauma and reanimation units, the ICU and nursing rooms, in which patients were interned after suffering a motorcycle accident. The population comprises 371 motorcycle drivers admitted into the hospital complex during the data collection period.

The criteria for inclusion in the population were: age equal to or higher than 18 years, being the motorcycle's driver during the event, accepting to take part on the study, having been evaluated by the examiner up to 72 hours at most after the accident. When in coma or unable to verbally communicate, being accompanied by a person who could lawfully answer for the victim and authorize their inclusion in the study.

For data collection, we used an instrument with closed questions, related to the characterization of victims. Injuries were evaluated by GCSI, AIS and ISS.

The “Abbreviated Injury Scale” is an anatomic scale, which characterizes the severity of injuries by body segments and rates them as AIS 1 (light) to AIS 6 (almost always fatal). From the AIS's three higher scores we obtain the Injury Severity Score (ISS), which rates gravity of trauma as minor from 1 to 15 points, moderate from 16 to 24 and severe above 25 points (IMAI; KOIZUMI, 1996).

The Glasgow Coma Scale (GCSI) is a physiologically-based rating developed to evaluate the alteration on the level of consciousness and has reached great acceptance around the world due to its easy application and for allowing the classification of cranial-encephalic trauma on minor from 13 to 15 points, moderate from 9 to 12 points and severe from 3 to 8 points (KOIZUMI; ARAÚJO, 2005).

The data collection was performed from October to December 2007, after the approval by the ethics committee, evaluation # 221/07, thus obeying the ethical principles on human being research according to resolution 196/96 from Conselho Nacional de Saúde (National Health Council) (BRASIL, 2000).

The data were collected according to the following steps: consultation of records in order to identify whether the patients fit our criteria and approaching of the victim or family member in order to take part on the research with the signing of a term of free and clear consent (TCLE).

After the signing of the TCLE we performed an interview to collect personal data as well as a cephalic-podalic physical exam and analyzed the records in order to identify injuries resulting from this event, classifying them on the Condensed Abbreviated Injury Scale (CAIS) and afterwards obtaining the trauma severity score with the ISS.

After identifying the injuries, we circled on the research instrument (CAIS) the corresponding item and then, from the sum of the squares of the highest AIS on the three most heavily traumatized different body regions, we obtained the ISS with a score ranging from 1 to 75.

It's important to stress that, in order to make the continued use of the AIS Manual easier, some authors created summarized instruments or simplified the manual. Among these is the Condensed Abbreviated Injury Scale (CAIS), used as an integral part of the data collection instrument (SOUSA et al., 1998).

In order to evaluate the level of consciousness, we used the GCSI, starting with the opening of the eye, which varies between 4 (spontaneous opening) and 1 (no response); afterwards we evaluated the best verbal response with scores between 5 (oriented) to 1 (no response); ending with the evaluation of the best movement response when, at 6, the patient responds to commands, and at 1 presents no response.

The data were analyzed by descriptive statistics and presented in the form of tables. To that end, we used the Statistica 6.0 and Microsoft Excel XP softwares.

RESULTS AND DISCUSSION

Characterization of motorcycle drivers affected by traffic accidents

From 371 researched motorcycle drivers, there was a predominance of the male gender, with 328 subjects (88.40%) over the female gender 43 (11.60%). This male overmorbidity can be linked to the greater number of male drivers (68.39%) in Rio Grande do Norte (BRASIL, 2006).

Regarding age, the group aged 18 to 24 was the most frequent 148 (39,90%). Robertson (2000) tries to explain the relation between the young age group and the occurrence of accidents by stating that this might happen due to inexperience, the pleasure of experiencing risk sensations and the search for strong emotions.

In regard to the instruction level, we observed that from the 371 motorcycle drivers, 241 (41.63%) had fundamental school as their highest instruction level. On a research performed on the Sarah hospital network (SARAH) with interned patients on the years of 1999 and 2000, 49.3% had fundamental level completed or incomplete (SARAH, 2006).

By analyzing the data according to occupation, the ones related to commerce and auxiliary activities (shopkeepers, clerks, street salesmen, commercial representatives) were the most representative, with 86 victims 86 (23.18%). Mauro (2001) found 32.2% of the drivers involved on traffic accidents to be employed as artisans, laborers, bureaucratic or civil workers, or construction employees.

Characterization in regard to the level of consciousness

TABLE 01 Distribution of scores obtained on GCSI by motorcycle drivers affected by traffic accident according to the use of helmet. HMWG NATAL/RN. 2007.

USE OF HELMET	GCSI						TOTAL	
	3 I-I 8		9 I-I 12		13 I-I 15			
	N	%	N	%	N	%	N	%
Yes	3	14,29	4	19,05	238	72,34	245	66,04
No	18	85,71	17	80,95	91	27,66	126	33,96
TOTAL	21	100,00	21	100,00	329	100,00	371	100,00

As we can observe on Table 01, 21 (100%) motorcycle drivers showed GSCI 3 to 8 (severe) and among these 18 (85.71%) were not wearing a helmet at the time of the accident. These data remind us to stress the importance of the use of the helmet as part of the preventive measures against the severity of cranial-encephalic injuries.

Liberatti (2003) found on his study that individuals that wore a helmet presented a reduction on both the risk level for injuries as well as their complications. Oliveira, Sousa (2003) reveals the gravity of traffic accidents is intrinsically related to imprudent actions such as not wearing a helmet.

Liberatti (2003) justifies this measure's importance, since the helmet was designed to better distribute the energy from the impact, dispersing it over a larger surface. He stresses that, when the outer shell and the polyethylene that covers the inside of the protection equipment are destroyed, additional evidence is given to the fact that it served its purpose.

Characterization of trauma severity by Injury Severity Score ISS

TABLE 02 Distribution of scores obtained on ISS by motorcycle drivers affected by traffic accidents according to the use of alcohol. HMWG NATAL/RN, 2007.

ISS	USE OF ALCOHOL				TOTAL	
	YES		NO			
	N	%	N	%	N	%
1 I-I15	114	36,66	197	63,34	311	83,83
16 I-I 24	37	74,00	13	26,00	50	13,48
25 I-	7	70,00	3	30,00	10	02,25
TOTAL	**158**	**42,59**	**213**	**57,41**	**371**	**100,00**

Table 02 shows that, among victims that presented greater trauma severity (ISS>25), those who consumed alcohol were predominant 7 (70%). If we observe the injury severity alone, we notice 311 (83.83%) of the 371 victims were rated ISS between 1 and 15 (light), 50 (13.48%) ISS between 16 and 24 (moderate); and 10 (2.7%) obtained ISS scores equal to or higher than 25. Imai and Koizumi (1996) stress that a ISS score higher to or equal to 16 represents a critical point on the victim's evaluation; the nurse's use of these scores helps detection of problems beyond appropriate planning and execution of appropriate nursing interventions.

Sousa, Regis and Koizumi (1999), analyzing trauma severity on motorcycle occupants also obtained a majority with minor injuries (42.30%), whereas the moderate and severe percentages are very different from ours, at 30.8% and 26.9%

respectively.

We reaffirm that the ingestion of alcoholic beverages as one of the factors that greatly contribute to traffic accidents and to the worsening of injuries resulting from trauma (Sousa; Regis and Koizumi, 1999).

FINAL CONSIDERATIONS

Our main findings identified that from 371 motorcycle drivers victimized by traffic accidents, 88.40% were male, and aged 18 to 24, 148 (39.90%), having as occupation commerce-related activities 86 (23,18%). As for the GCSI evaluation, 5.66% of the population scored GCSI 3 to 8 (severe); furthermore, 18 (85.71%) of those who present lower levels in the scale were not wearing a helmet. Regarding the ISS, 10 2.7% of the drivers had the highest scores ISS > 25 (severe); among these, 30% ingested alcohol. The main victims are, thus, young males who use the vehicle on commerce-related activities.

Give that, we cannot deny the importance of motorcycle drivers as important traffic accident victims. In this context, the use of GCSI, AIS and ISS constitute relevant instruments for nursing, as well as for other health professionals in the evaluation of trauma severity in this group of patients.

The reduced number of research works that use these scores in Brazil makes it difficult for us to present more up-to-date research references.

In the intention of minimizing both the events and the severity of injuries, we believe health education on the population can constitute a transforming element upon traffic behavior. We also believe this educational process must be started from the first years of school life alongside parents and teachers, as well as through campaigns in the media.

KEYWORDS**:** Motorcycle; Trauma Severity Indices; Nursing

REFERENCES

BRASIL. Ministério da Saúde. Comissão Nacional de Ética em Pesquisa CONEP. Normas para pesquisa envolvendo seres humanos (Res. CNS 196/96 e outras). Brasília: 2000.

_____. Registro Nacional de acidentes e estatísticas do trânsito (RENAEST). Anuário estatístico de transito-2004.disponível em: www.denatran.gov.br>. Acesso em: 12/10/2006.

FARIAS, G.M.. **Deficiências, Incapacidades e Desvantagens decorrentes de Causas Externas- análise em pacientes internados no IOT-FMUSP, 1991**. (Tese). São Paulo: Escola de Enfermagem da Universidade de São Paulo, EEUSP, 1995.

IMAI, M.F.P.; KOIZUMI, M. S. Avaliação da gravidade do traumatismo crânio-encefálico por índices anatômicos e fisiológicos.**Rev.Esc.Enf.USP**, v.30,n.1,p.116-137,abr.1996.

KOIZUMI, M. S.; ARAÚJO, G. L. do. Escala de Coma de Glasgow: subestimação em pacientes com respostas verbais impedidas. **Acta paul. enfermagem**, v. 18, n. 2, p. 136-142, abr./jun. 2005.

LIBERATTI, C. L. B. et al.. Uso de capacete por vítimas de acidentes de motocicleta em Londrina, Sul do Brasil. Revista Panam Salud Publica, v. 13, n. 1, p. 33-38, 2003.

MARÍN, L.; QUEIROZ, M. S. A atualidade dos acidentes de trânsito na era da velocidade: uma visão geral. **Cadernos de Saúde Pública**, v. 16, n. 1, p. 7-21, 2000.

MAURO, M. L. F. **Acidentes de trânsito: perfil epidemiológico de vítimas e caracterização de alguns traços de personalidade de motoristas infratores em Campinas, São Paulo.** Campinas, 2001. Tese (Doutorado)Universidade Estadual de Campinas,Capinas, 2001.

OLIVEIRA, N. L.B.; SOUSA, R. M. C. Motociclistas frente às demais vítimas de acidentes de trânsito no município de Maringá. **Acta Scientiarum. Health Sciences.** Maringá, v. 26, n. 2, p. 303-310, 2004.

OLIVEIRA, N. L. B.; SOUSA, R. M. C. Diagnóstico de lesões e qualidade de vida de motociclistas, vítimas de acidente de trânsito. **Revista Latino-Americana de Enfermagem**, Ribeirão Preto, v. 11, n. 6, p. 749-756, 2003.

ROBERTSON,L.S**. Injury epidemiology**.New York:McGraw-Hill,2000.

SOUSA, R. M.C.; REGIS, F.C.; KOIZUMI, M. S. Traumatismo crânio-encefálico: diferenças das vítimas pedestres e ocupantes de veículos a motor. **Revista de Saúde Pública**, São Paulo, v. 33, n. 1, p. 85-94, 1999.

SALLUM, A. M. C. ; KOIZUMI, M. S. . Natureza e gravidade das lesões em vítimas de acidente de trânsito de veículo a motor**. Revista da Escola de Enfermagem da Universidade de São Paulo (USP)**, São Paulo, v. 33, n. 2, p. 157-164, 1999.

SOUSA, R.M.C. et al. A gravidade do trauma em vítimas de traumatismo crânico-encefálico avaliada pelo manual AIS/90 e mapas CAIS/85. **Rev. Latino-am.enfermagem**, Ribeirão Preto, v. 6, n.1, jan. 1998, p. 41-51.

REDE SARAH DE HOSPITAIS DE REABILITAÇÃO - SARAH. Mapa da Morbidade por Causas Externas. Perfil geral da internações por causas externas. Disponível em : <http://www.sarah.br>. Acesso em 24 de fevereiro de /2006.

WHITAKER, Y.Y.;GUTIERREZ, M.G.R; KOIZUMI,M.S. Determinação da gravidade do trauma avaliada na fase pré-hospitalar.**Rev.Associação Médica Brasileira**, v.44, n.2,p.111-119,1998.

Main Author: GLAUCEA MACIEL DE FARIAS, Rua Jerônimo de Albuquerque, 3621, Candelária, CEP: 59064-650, Natal/RN Brasil. Telefone: (84) 3215-3840 / 9983-6159. E-mail: glauceamaciel@gmail.com

Co - authors:

CRISTIANE DA SILVA RAMOS: cristiane_ramos@bol.com.br

WANESSA CRISTINA TOMÁZ DOS SANTOS BARROS: wanessaenf@bol.com.br

LUIZ ALVES MORAIS FILHO: moraisfilho2004@ig.com.br

MIRNA CRISTINA DA SILVA FREITAS: mirnacfreitas@yahoo.com.br

EVALUATION OF TRAUMA SEVERITY ON MOTORCYCLE DRIVERS INVOLVED IN TRAFFIC ACCIDENTS ATTENTED TO IN A HOSPITAL IN NATAL/RN

ABSTRACT

Descriptive exploratory study, prospective, with quantitative approach, performed on the Monsenhor Walfredo Gurgel hospital complex, Natal/RN, aiming to evaluate the trauma severity on motorcycle drivers, affected by traffic accidents. The population comprised 371 motorcycle drivers, with data collected from October to December 2007. We use as instrument the Abbreviated Injury Scale (AIS), Injury Severity Score (ISS) and the Glasgow Coma Scale (GCSI). The results show, regarding the characterization, that 88.40% of drivers victimized by traffic accidents were male, in the age group of 18 to 24 (39.90%). As for GCSI rating, 5.66% of the population had GCSI 3 to 8 (severe); and most, 88.68% had a GCSI 13 to 15 (minor). Furthermore,

85.71% of those that scored lower on the scale were not wearing a helmet. As for the ISS, 311 drivers scored 1 to 15 (minor), 50 scored 16 to 24 (moderate) and 10 scored above 25 (severe). Thus, 2.7% of the drivers had the highest scores (ISS>25); among which 30% had ingested alcohol. With these instruments, we were able to evaluate trauma severity and identify that most injuries are or minor severity. The use of these scales in this process is nevertheless very important.

KEYWORDS**:** Motorcycle; Trauma Severity Indices; Nursing

ESTIMATION DE LA GRAVITÉ DU TRAUMA DE MOTOCYCLISTES VICTIMES D'ACCIDENTS DE LA CIRCULATION, TRAITÉS DANS UN HÔPITAL DE NATAL/RN

RÉSUMÉ

Étude exploratoire descriptive, prospective, quantitative, menée à l'Hôpital Monsenhor Walfredo Gurgel de Natal/RN, ayant pour but d'évaluer la gravité du trauma de motocyclistes victimes d'accidents de la circulation. La population compta 371 motocyclistes et les données furent recueillies d'octobre à décembre 2007. On employa l'Abbreviated Injury Scale (AIS), l'Injury Severity Score (ISS) et le Barême Comateux de Glasgow (ECGI). Les résultats montrent que 88,40% des motocyclistes victimes d'accidents de la circulation étaient de sexe masculin, âgés de 18 à 24 ans (39,90%). Quant à l'estimation de l'ECGI, 5,66% de la population présenta un ECGI de 3 à 8 (grave); la grande majorité (88,68%) présenta un ECGI de 13 à 15 (faible). Par ailleurs, 85,71% de ceux présentant les degrés les plus sérieux du barême ne portaient pas de casque. En ce qui concerne l'ISS, 50, 10 et 311 motocyclistes eurent un score de 1 à 15 (faible), 16 à 24 (modéré) et supérieur à 25 (grave), respectivement. Ainsi, 2,7% des motocyclistes présentèrent les scores les plus élevés (ISS>25); 30% de ceux-ci avaient bu de l'alcool. Par le biais de ces instruments, nous avons pu évaluer la gravité du trauma et nous avons identifié que la plupart des traumatismes étaient de faible gravité; toutefois, l'utilisation de ces barêmes dans le processus est fort importante.

MOTS-CLÉS: Motocyclettes; Index de Gravité du Trauma; Soins Infirmiers

EVALUACIÓN DE LA GRAVEDAD DEL TRAUMA DE LOS CONDUCTORES DE MOTOCICLETAS VICTIMAS DE ACCIDENTE DE TRÁNSITO ATENDIDOS EM UM HOSPITAL DE NATAL /RN

RESUMEN

Estúdio exploratório descriptivo, prospectivo, com abordaje quantitativa, realizado em el Hospital Monseñor Walfredo Gurgel,Natal/RN, com el objetivo de evaluar la gravedad del trauma de los conductores de motocicleta. Victimas de accidentes de tránsito. La población consto de 371 conductores de motocicleta, con datos colectados de Octubre a Diciembre de 2007. Utilizamos como instrumento a “Abbreviated Injury Scale (AIS), Injury Seventy, Score (ISS) y Escala de Coma de Glasgow (EGGI). Los resultados muestran cuanto a la caracterización que 88,40% de los conductores víctimas de accidentes de tránsito de sexo masculino en la edad entre 18 y 24 años (39,90%). Cuanto a la evaluación de la EGGI 5,66%, de la población tuvieron EGGI de 3 a 8 (grave) y la mayoría, 88,68% presentaron EGGI de 13 a 15 (leve). Además de eso 85,71% de aquellos que presentaron menores niveles en la escala no utilizaban casco de protección .En lo que se refiere al ISS, 50, 10,y 311 motociclistas obtuvieron el rango de índice de 1 a 15 (leve). 16 a 24 (moderado) y mayor de 25 (grave) respectivamente . Así, 2,7% de los conductores tuvieron los resultados más altos (ISS>25) de estos 30% consumieron alcohol. Con esos instrumentos, pudimos evaluar la gravedad del trauma e identificamos que los traumatismos en su mayoría presentaron poca gravedad, sinembargo, la utilización de esas escalas en el proceso es de gran importancia.

PALABRAS CLAVE: Motocicletas, Índices de Gravedad del Trauma, Enfermería

AVALIAÇÃO DA GRAVIDADE DO TRAUMA DOS CONDUTORES DE MOTOCICLETA, VÍTIMAS DE ACIDENTE DE TRÂNSITO, ATENDIDOS EM UM HOSPITAL EM NATAL/RN

RESUMO

Estudo exploratório descritivo, prospectivo, com abordagem quantitativa, realizado no Hospitalar Monsenhor Walfredo Gurgel, Natal/RN, com o objetivo de avaliar a gravidade do trauma dos condutores de motocicleta, vítimas de acidente de trânsito. A população constou de 371 condutores de motocicleta, com dados coletados de outubro a dezembro de 2007. Utilizamos como instrumento a Abbreviated Injury Scale (AIS), Injury Severity Score (ISS) e Escala de Coma de Glasgow (ECGI). Os resultados mostram quanto a caracterização que 88,40% dos condutores vítimas de acidente de trânsito eram do sexo masculino na faixa etária entre 18 e 24 anos (39,90%). Quanto à avaliação da ECGI, 5,66% da população tiveram ECGI de 3 a 8 (grave); e a maioria, 88,68%, apresentaram ECGI de 13 a 15 (leve). Além disso, 85,71% daqueles que apresentaram menores níveis na escala não utilizava capacete. No que se refere ao ISS, 50, 10 e 311 motociclistas obtiveram a faixa de índice de 1 a 15 (leve), 16 a 24 (moderado) e maior de 25 (grave) respectivamente. Assim, 2,7% dos condutores tiveram os escores mais altos (ISS>25); destes 30% consumiram álcool. Com esses instrumentos, pudemos avaliar a gravidade do trauma e identificamos que os traumatismos em sua maioria apresentam pouca gravidade, no entanto, a utilização dessas escalas, nesse processo, é de grande importância.

PALAVRAS-CHAVE: Motocicletas; Índices de Gravidade do Trauma; Enfermagem.