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Car Accidents and its relation to chronic diseases among people in Eastern province of Saudi Arabia in 2013 – 2014

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Abstract
Car accident is the collision of one motor vehicle with another, a stationary object, or person, resulting in injuries, death and /or loss of property. It is a morbid public health condition that kills 45,000/yr in US. We have chosen this topic to assess the health related characteristic of patients who sustained road traffic accidents (RTA) and to find the relationship between car accidents and chronic disease.

Keywords : *car accidents , hypertension , injuries .*

Introduction

Car accident is the collision of one motor vehicle with another, a stationary object, or person, resulting in injuries, death and /or loss of property. It is a morbid public health condition that kills 45,000/yr in US. We have chosen this topic to assess the health related characteristic of patients who sustained road traffic accidents (RTA) and to find the relationship between car accidents and chronic disease. Complications and sequences in patients with chronic diseases, the nature of the disease, its complications, or the medications prescribed for patients all play a major role as a cause for increasing the incident rates of car accident among this category of people. [1]

Background

Definition:

An increased traffic accident risk appears to be associated with several chronic medical conditions including alcoholism, cardiovascular disease, epilepsy, diabetes and mental illness. The studies show that medical handicaps other than alcoholism are a factor in from 5 to 10 per cent of traffic accidents. However, in about half of the accidents caused by heart attacks, the individual has no previous knowledge of his illness, and prevention of the accident would not be possible. The illness was most often due to epilepsy or myocardial infarction. [2]

Causes and risk factors of car accidents due to chronic diseases:

1- Diabetes Mellitus:

Hypoglycemia attacks in insulin - treated diabetics. Diabetes mellitus can cause diabetic retinopathy, which is growth of friable and poor-quality new blood vessels in the retina as well as macular edema, which can lead to severe vision loss or blindness. [3] It also can dramatically increase the risk of cardiovascular problems, including coronary artery disease with chest pain (angina). [4] Neuropathic

problems related to diabetes can leads to loss of feeling in feet and toes. [5]

2- Hypertension:
- Headache.
- Brain infarction and hemorrhage.
- Hypertensive retinopathy.
- CVD and sudden angina attacks.

3- Epilepsy
caffeine use can increase the occurrence of seizures [6], particularly if it interrupted normal sleep patterns and drugs such as tramadol and methamphetamine [7] have been noted induce seizures .

Distribution:

Canadian Researchers at McGill University in Montreal found a 45 % increase in car accidents resulting in personal injuries caused by people who had been taking benzodiazepines, the drugs used to treat anxiety or insomnia. [8]

Between 5 to 10% of Americans crash a car each year. For people with epilepsy , the rate is about 30 to 50% higher .while that sounds alarming , a 50% risk increase is far below the higher crash risk for drinking drivers , young male drivers or elderly drivers . [8]

Aim: To assess the health related characteristic of patients who sustained road traffic accidents (RTA)

Study Method

Study Design: A Cross-sectional study of the people in the Eastern province of Saudi Arabia who attend shopping malls.

Target Population: Males who have driving license in Eastern Province of Saudi Arabia.

Study Population: People attending malls (Al Shatee Mall, Marina Mall, Qatif City Mall and Mazaya Food), in two major cities of Eastern province: Qatif and Dammam.

The cases were collected from the malls as we expected the distribution of males; as follow:

The Mall	Number of expected cases
Al Shatee Mall	100
Marina Mall	100
Qatif City Mall	100
Mazya Food	50

Sample Size Determination: There are 10 students in the group, each student collected 50 cases, the total is 550.

Sampling Technique: Convenient sampling. Males who attend the malls and above the age of 18 are given the questionnaire, the objective was explained to them and they were asked to fill them out.

Study Instrument: A questionnaire has been designed to gather information about the accident circumstances and impact of a chronic disease on it –if exists-. It includes: demographic data, history of car crashes, chronic diseases and the use of medications.

Data Collection Tool (the Questionnaire): (Appendix)

The study group constructed a questionnaire, which was used as the date collection tool.

It comprises of the following sections:

1. Demographic data: includes age, nationality and marital status.
2. Information about accident: Time of accidents, the status of the weather and the road, presence of injuries.
3. History of any chronic diseases, use of medications and information about their side effect.

Data Collection procedure:

this was conducted from 20th of June to 4th of July 2013. The research group members were divided into 5 sub groups with 2 members in each group.The questionnaires were given to the chosen participant who filled theme out and returned it back to the study members at the same time.

Statistical analyses:

Data was coded, entered and analyzed in the computer by using SPSS program. Numerical data (e.g. age) is presented by mean and standard deviation. Categorical data is presented as frequency and percentage.

Results

From the total 354 cases that have been collected from people who have had a car accident, 26% of the collected cases have chronic diseases. These accidents are more in Saudis 350 (98.9%), more in married people 229 (64.7%) and more in people who are in their second and third decades 156 (44.1%).

The Accidents rate was higher during the daytime 233 cases (65.8%), 98 of them (27.7 %)had injuries. Among the 92 people who have chronic diseases, (36%) of them had diabetes, 21% hypertension, 5% epilepsy and (38%)had other diseases, (89%) of these people were taking their medications regularly and (84%) were compliance. Around one-third of patients (35%) complained of side effects of these drugs.

The outcome of the research showed that (15%) of the accidents is due to the mentioned chronic diseases or due to the drugs' side effect, these results are according to the opinion of the people who filled in the questioner.

Table 1: demographic characteristics of people who have had road traffic accidents (RTA) in Eastern province of KSA

Demographic Data	Frequency	Percentage %
Age		
Less than 18	10	2.8 %
18- 30	156	44.1%
31-50	138	39 %
More than 50	50	4.1%
Marital status		
Single	120	33.9%
Married	229	64.7 %
Widowed	5	1.4%

Nationality		
Saudi	350	98.9%
Non- Saudi	4	1.1 %

Table 2: Accident related data of people who had RTA in Eastern province of KSA

Accidental related	Frequency	Percentage %
Time of accident		
Day	233	65.8
Night	121	34.2
Presence of injuries		
Yes	98	27.7
No	256	72.3

Disease Related:

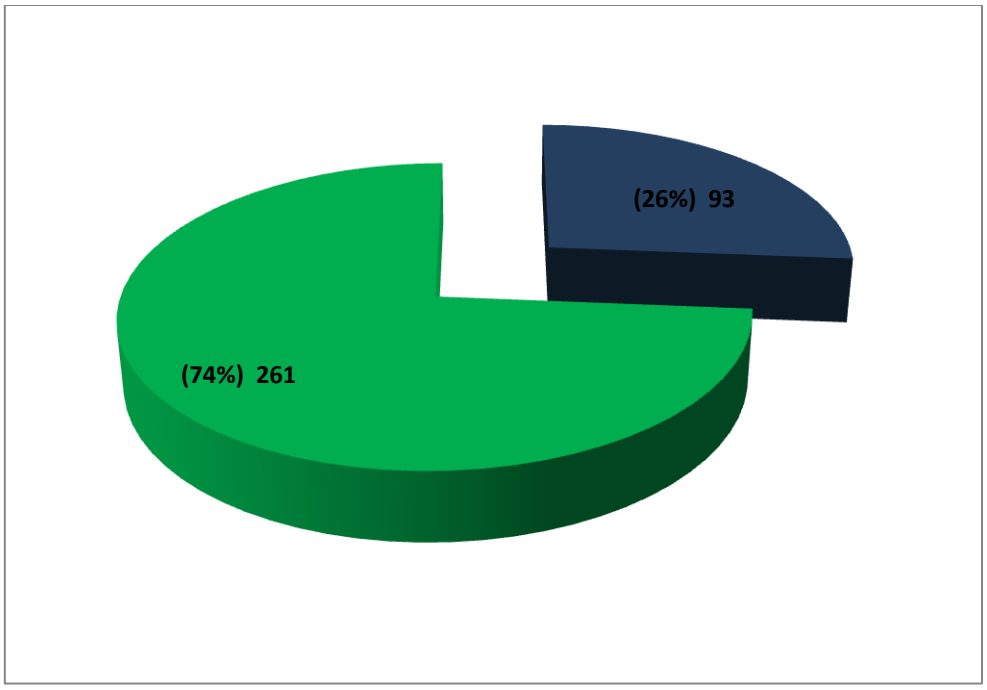

Figure 1: presence of chronic disease among patients who sustained RTA in Eastern province of KSA.

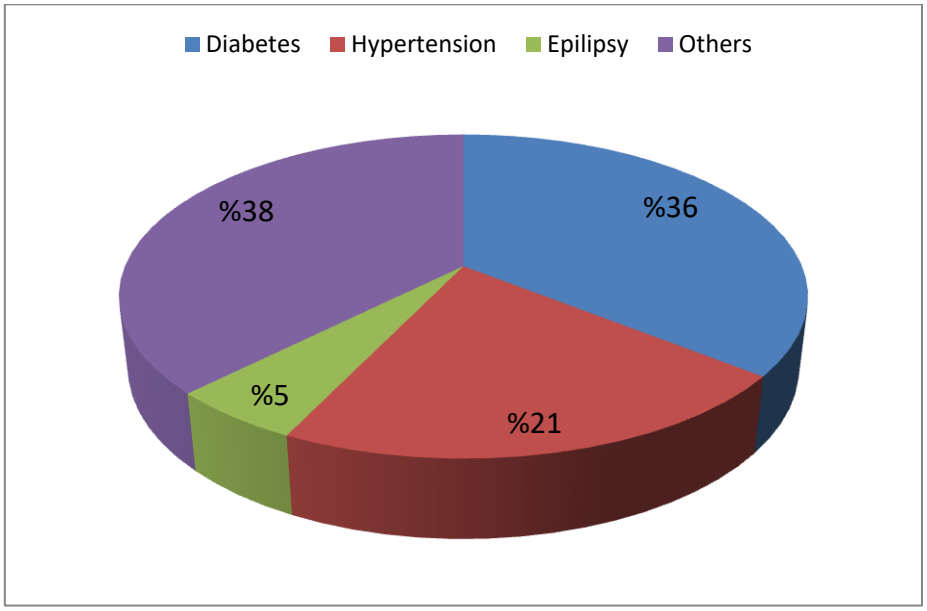

Figure 2: Distribution of chronic diseases among patients who had RTA in the Eastern province of KSA

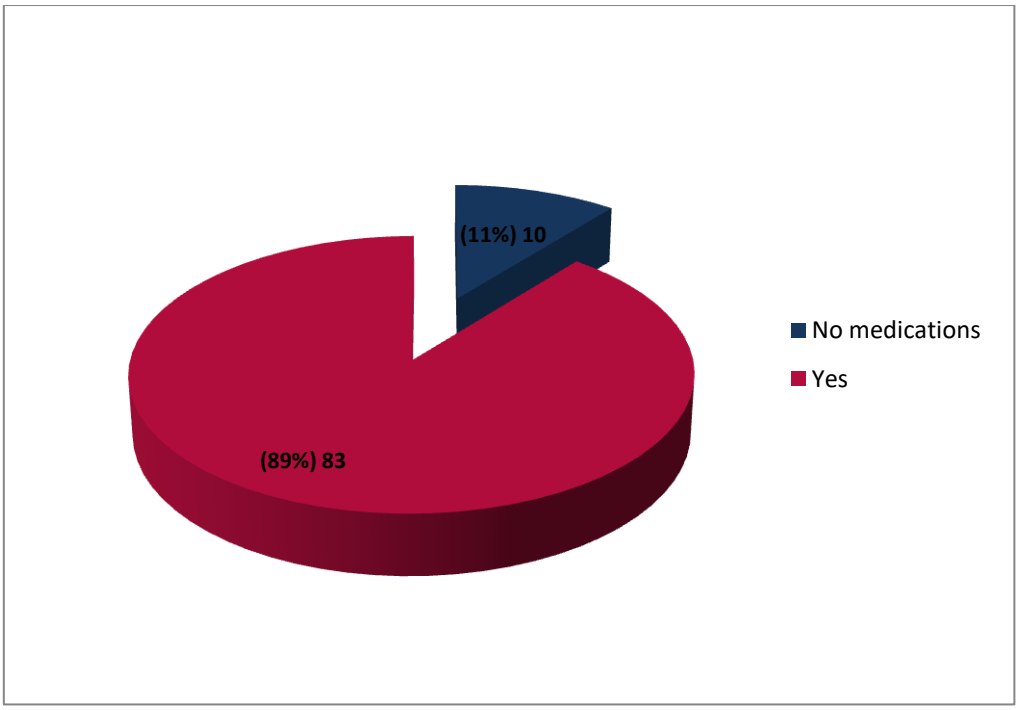

Figure 3: Distribution of people who take medications for chronic diseases among people who had RTA in the Eastern province of KAS

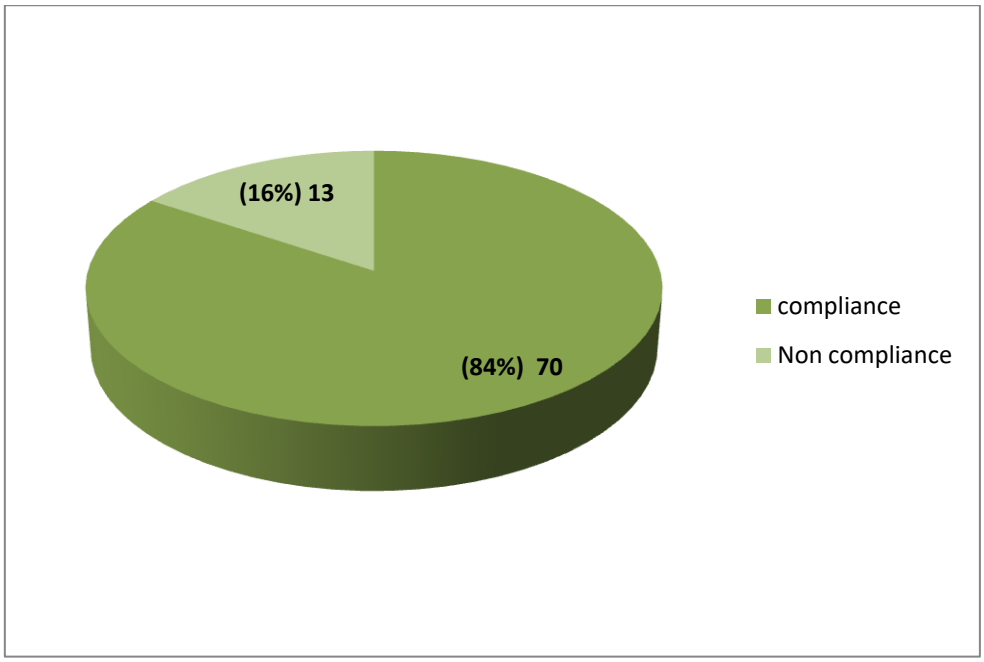

Figure4: Distribution of compliance in taking medications among people who have chronic diseases in the Eastern province of KSA.

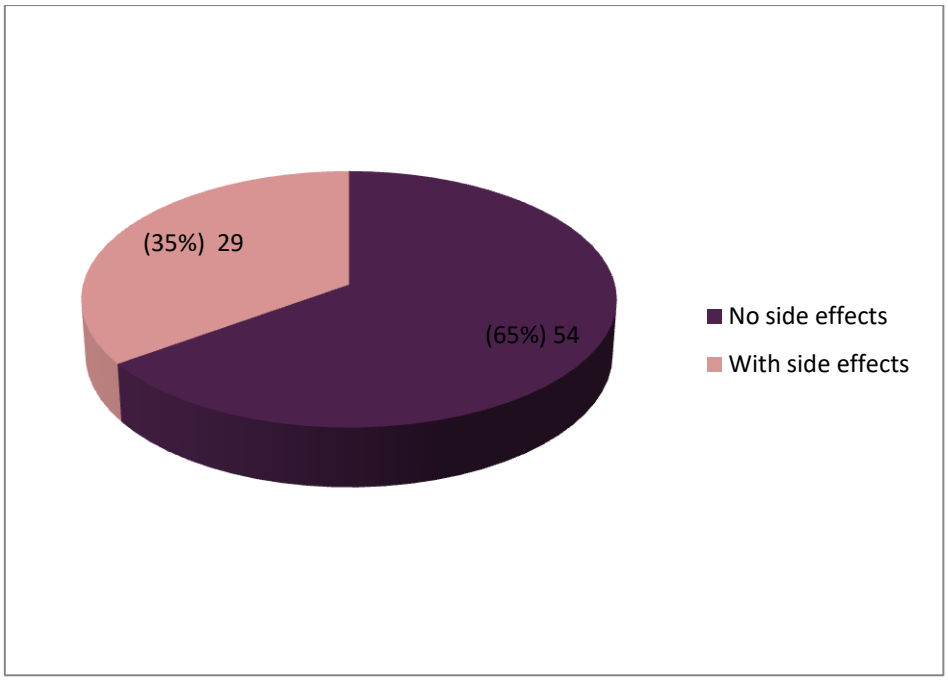

Figure 5: Side effects of the medications taken by people with chronic diseases who sustained RTA in Eastern province of KSA.

Outcomes:

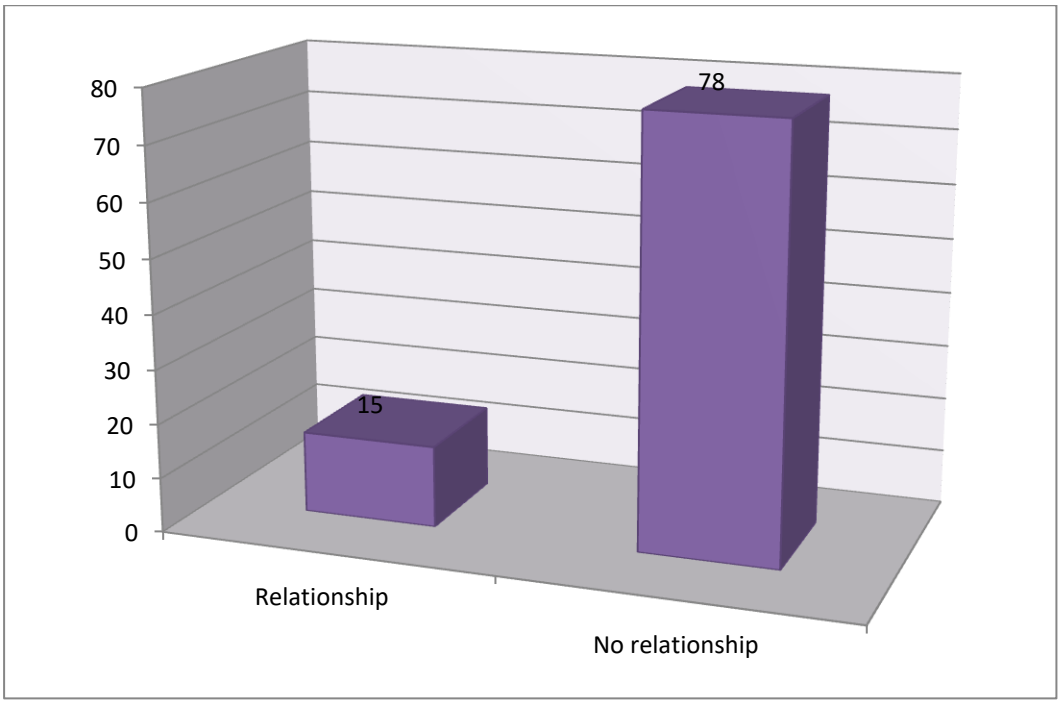

Figure 6: People who believe that there is a relationship between their accidents and their chronic diseases in Eastern province of KSA.

Discussion

In previous study, a study done by Sheth SG about causes leading to traffic deaths in the USA, the leading chronic diseases in people who have had car accidents were hypertension (4.1%) followed by diabetes (0,3%) then epilepsy (0.2%) . While in our study the leading chronic diseases in people who have had car accidents were others (38%), followed by diabetes (36%) then hypertension (21%) then epilepsy (5%)، which may confirm that epilepsy has the lowest rate of causing car accident. [9]

Another study, which is a study published online on September 9, 2012, in the British Journal of Clinical Pharmacology, Patients taking a range of antidepressants, sleeping pills, and anxiety medications are at increased risk of having a car accident, which has the same result of our research, which showed that there was (15%) often accidents is due to either the chronic disease or its drug side effects.[10]

Another study, in Taiwan compared the incidence of drug use among 5,200 people involved in major car accidents and compared that data with drug use numbers among 31,000 people with no history of serious accidents. They discovered that the people involved in car accidents were more likely to have taken psychotropic drugs for any length of time, and a study of 11,244 patients in the Scottish Trauma Audit Group database who were admitted to the hospital for ≥3 days, the road traffic accident rate for insulin-treated patients were estimated at 44.4 per 100,000 people per year, compared with 34.4 for the general population, which is confirmed by the previous result of our research. [11],[12]

Conclusion

In conclusion from the total 354 cases that have been collected from people who have had car accident, 26% of the collected cases have chronic diseases. Among them (36%) had diabetes, 21% had hypertension, 5% had epilepsy and (38%) had other diseases. It was higher in the age group of the second and third decades, and in married and Saudi population.

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N.B : all participant participated equally in the research

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