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A study on the prescription pattern of anti-hypertensive drugs in general hospital of Al-Quwayyah, Saudi Arabia

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ABSTRACT

An open, non-comparative, observational study conducted on hypertensive patients attending the OPD medicine of Al-Quwayyah general hospital, Al-Quwayyah, Saudi Arabia by conducting patient interviews and recording the data on drug utilization form based on JNC-7 and WHO format. Total of 212 hypertensive patients were included in study, prevalence of hypertension was found to be higher in male in age group of 45-59 years, smoker and pre-hypertension stage. 60.38% antihypertensive drugs prescribed by trade name and by 39.62 % by generic name. It was observed that Monotherapy were most prescribed mode of drugs and in Combination therapy the frequency and percentage of two drug combination were found 3/4 of the total combination therapy similarly three combination drugs were 16.72 % and more than three drugs combination were only 3.41 %. It was observed that Beta blocker were prescribed most (28.77%) among antihypertensive drugs followed by calcium channel blocker (25.47%), ACE inhibitor (17.92%), Diuretics (12.74%), AT II Receptor Blocker (9.4%) and alpha blocker were found to be least one. The Conclusion of study was found that the Utilization pattern of Antihypertensive drug in General hospital Al-Quwayyah, Saudi Arabia indicates that Beta blocker were prescribed individually most as monotherapy and if combination therapy then 2 drug combination of antihypertensive drugs.

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INTRODUCTION

Cardiovascular disease accounts for approximately 17 million loss of life in a year globally (WHO Report, 2013). The complications of hypertension account for 9.4 million deaths every year and responsible for about 45% of deaths due to heart disease (Alam et al., 2017). Apart from not healthy lifestyles, lack of awareness and knowledge about hypertension, distorted public health systems, as well as physicians treating hypertension lag behind in treating hypertension according to standard guidelines are some reason for uncontrolled hypertension (Arshad et al., 2012). The World health organization (WHO) defines drug utilization studies the marketing, distribution, prescription and the use of drugs in a society with special emphasis on the resulting medical, social and economic consequences. The surveys based prescription pattern are an important methodological instrument of drug utilization studies which help to provide an in-depth insight into the disease profile of patients and prescribing behavior of clinicians (Datta, 2017). Prescription pattern for treatment of hypertension is complex and many factors such as polypharmacy, comorbid conditions, pharmacokinetic-pharmacodynamic variability and noncompliance make the high risk in concern to drug safety (Tandon et al., 2014). International healthcare communities have been developed guidelines for the management of hypertension based on the regional, national and international

influencing factors (Kjeldsen et al., 2014). Most of the hypertension treatment guidelines currently suggest that physician strive to treat adults to a blood pressure target of ≤140/90 mm Hg and in patients aged ≥60 years, blood pressure should be targeted to less than 15/90 mmHg (Qaseem et al., 2017). To achieve the goals of hypertension managements from panel of the Eighth Joint National Committee (JNC8) suggested that various classes of antihypertensive drugs are used in the treatment of hypertension and they include diuretics, beta-blockers calcium channel blockers (CCB), angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin II receptor blockers (James et al., 2014; Chu et al., 2014). The JNC guidelines recommend thiazide diuretics to be prescribed alone or as a part of combination therapy for most hypertensive patients without compelling indications however recent published data showed an increasing use of the more expensive CCBs and ACEIs despite the inadequate evidence to support their superiority to diuretics and Beta Blocker in reducing morbidity and mortality of cardiovascular diseases (Hernandez-Vila, 2015; Bakare et al., 2016). Hence, the current study was carried to evaluate antihypertensive drug prescription patterns and adherence to JNC7-8 and World Health organization hypertension treatment recommendations among hypertensive patients in a general hospital of Saudi Arabia.

METHODOLOGY

Study Design

Prospective, observational analysis of Adverse drugs reactions Patterns in patients with established hypertension. All the observations were recorded in special designed documentation form.

Study Site

The Study was carried out in the OPD of cardio vascular diseases in college of Applied medical science Al-Quwayyah General Hospital, Al-Quwayyah, Saudi Arabia.

Duration of Study

The study was carried out during the period of December 2011 to May 2012 (6 months).

Subject Demographics

Study was conducted on 212 eligible patients at Al-Quwayyah General Hospital who were willing to participate. Patients (n=25) presenting with ADR were observed for changes in physical and biochemical parameters based on pathological lab reports.

Material Used

Drug Utization form, Medical record, Patient Counseling Form.

Inclusion Criteria

All hypertensive patients irrespective of age and sex visiting Medicine OPD in General Hospital were included in the study Patients treated with at least one antihypertensive agent

Exclusion criteria

- Patients who were not treated with antihypertensive agents
- Drug addicts
- All the mentally retarded and unconscious patients

Sources of data

- Physician prescribing records.
- Patient's medication profile

Data Collection

Information on age, gender, drugs prescribed and patient feedback were recorded on special design

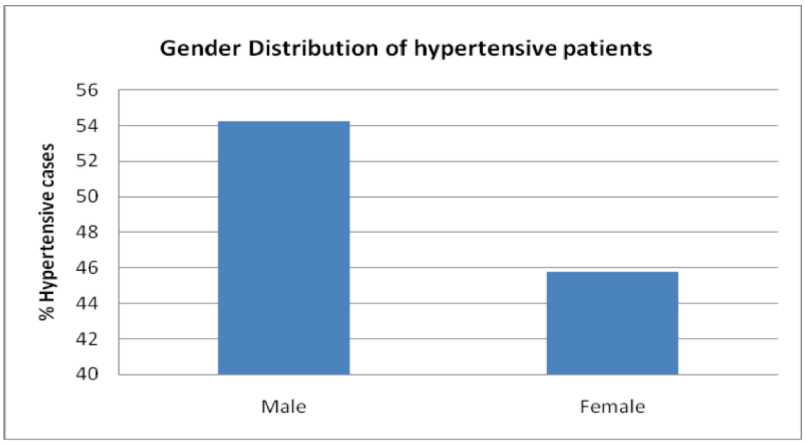

Figure 1: Cases of hypertension in different sexes in Quwayyah, Saudi Arabia

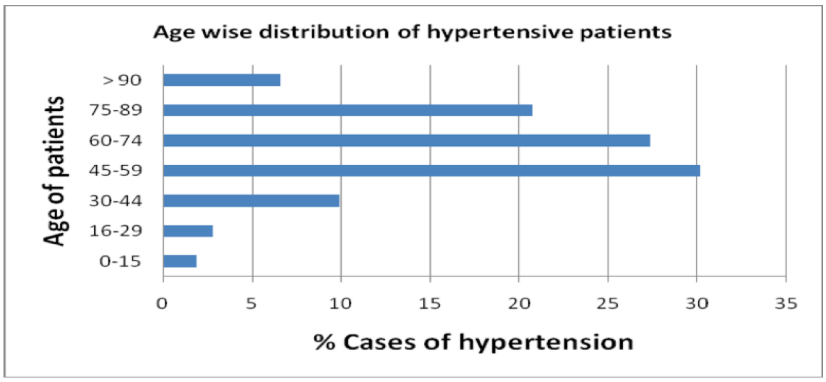

Figure 2: Cases of hypertension in different age group in Quwayyah, Saudi Arabia

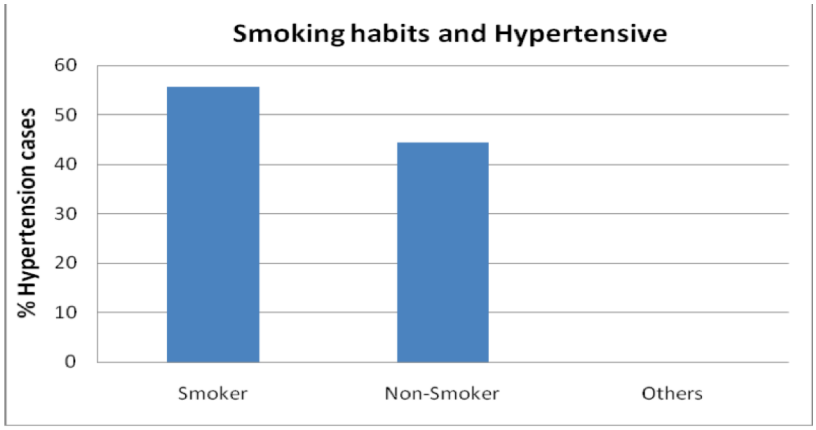

Figure 3: Correlation of hypertension among Smokers and Non-smokers

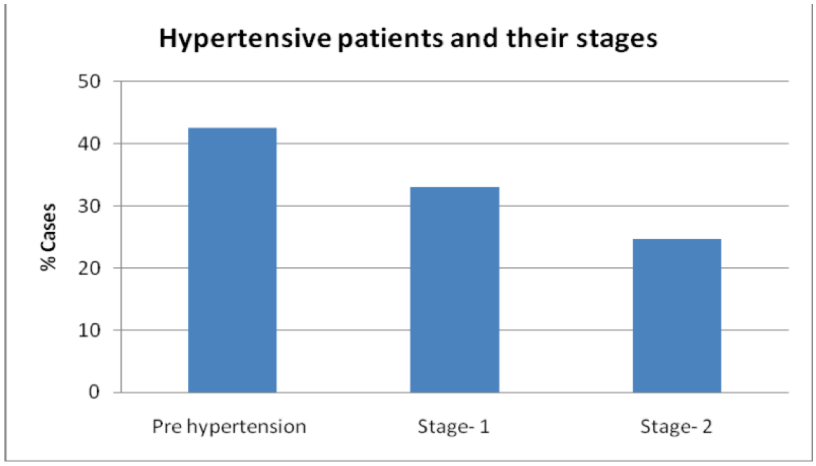

Figure 4: Stages of hypertension in the studied population

form in Medicine OPD by conducting a patient interview after their informed consent was obtained. All the data were kept confidential

RESULTS

The Study was carried out in a Government hospital of Riyadh Province, Al-Quwayyah city of Saudi Arabia, I enrolled 212 patients who were prescribed with antihypertensive drugs during the study period of specified time.

Gender Distribution of hypertensive patients

The Prevalence of hypertension was found more in male in my study than female. As showing in below table it was 115 patients were males and 97 were females, in this way the contribution of male gender in antihypertensive drug prescribed were 54.24 percentages and the female were 45.75 percentages (Fig. 1 and table 1).

Age wise distribution of hypertensive patients

The most Prevalence age group was 45-59 years (30.19 %) followed by 60-74 years (27.36 %) with respect to hypertension and antihypertensive drug prescribed. Least cases of hypertension were found in bellow 15 years of age group (1.89 %) then in age group of 16-29 (2.83 %). In the age group 30-44 the use of antihypertensive drugs was

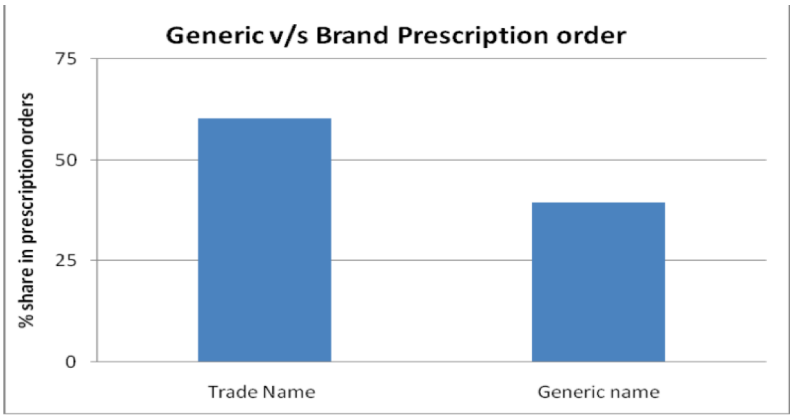

Figure 5: Prescription order of branded drugs and generic drugs in the management of hypertension

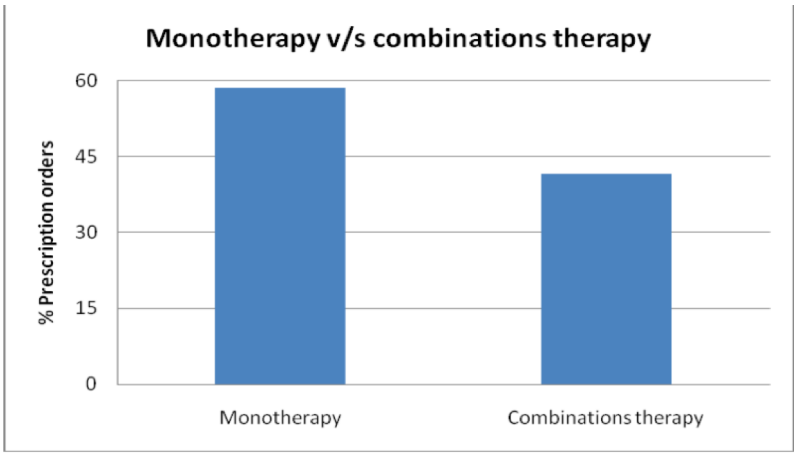

Figure 6: Types of therapy used in prescription order in the management of hypertension

9.91 % and in very old age group, above 90 years it was 6.6%, as shown in fig. 2.

Distribution of Hypertensive patients as per Social Habits

Smoking has high impact in contribution of hypertension and in the present study, it was observed that 55.66 % of patients were smoker rest 44.34 % were non-smoker. I also tried to find other social habits like drug addicted, alcoholic etc but no any cases observed and presented in fig.3.

Classification of Hypertensive patients on the basis of stages of Hypertension

The prescription of drug depends on stages of Hypertension. I observed three stages of patients and it was found that pre hypertensive patients were 42.45 % followed by 33.02 % and 24.53 % for stages 1 and stages 2 respectively shown in fig. 4.

Name used of in the Prescription

It was observed that most of the drug prescribed by trade name (60.38 %) and by 39.62 % of drugs prescribed by generic name (Fig. 5.)

Classes of antihypertensive drugs prescribed as Monotherapy Vs. combinations

As shown in below Fig. 6 it was observed that monotherapy was most common method drug prescribed.

In combination Therapy, Number of Drug Prescribed

The Frequency and percentage of two drug combination were found maximum in my study, it was 3/4 of the total combination therapy similarly three combination drugs were 16.72 % and more than three drugs combination were only 3.41 % as shown in fig. 7.

Classes of antihypertensive drugs prescribed as Combination therapy

It was observed that Beta blockers were prescribed most (28.77%) among antihypertensive drugs followed by calcium channel blocker (25.47%), ACE inhibitor (17.92%), Diuretics (12.74%), AT II Receptor Blocker (9.4%) and alpha blocker were found to be least one, presented in fig. 8.

DISCUSSION

To ascertain the effects of drugs in health care system drug utilization studies are most prominent and powerful exploratory tools. It established a

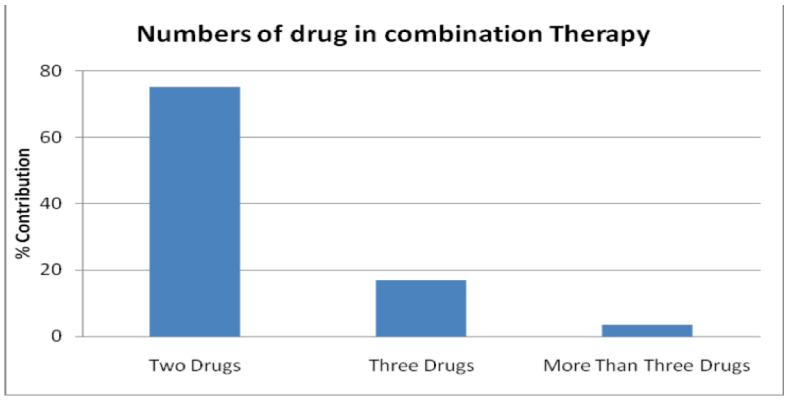

Figure 7: Antihypertensive prescription order and number of drugs in combination therapy

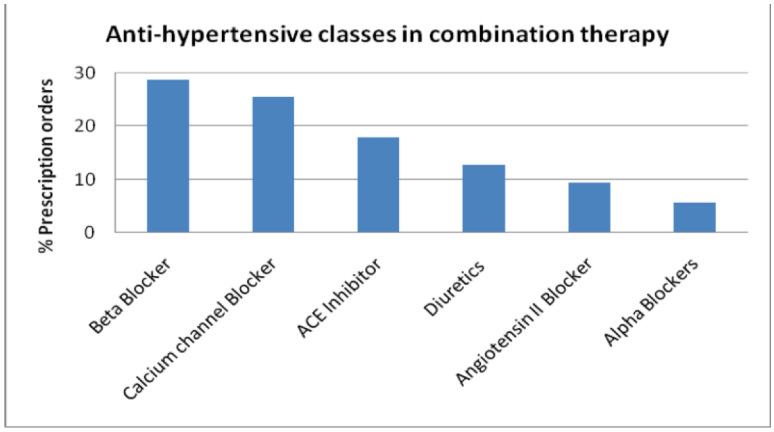

Figure 8: Prescription order of different antihypertensive class for the management of hypertension in Quwayyah, Saudi Arabia

good relationship between existing drug and their impact on patients, that helpful for rational and effective use of medications. Drug utilization is one the most effective method to assess the pattern of prescribed drugs in a health care setting. In present studies, it was observed that hypertension was more prevalent in males than in females which were same observed in the study conducted in Saudi arabia (El Bcheraoui et al., 2014). Most of the patients were in the age group of 45-59 years among both the genders, the similar observation was also noticed in another study (Wang et al., 2017). It was observed that more hypertensive patients are smoker as compared to non-smoker, similar results were also reported in different article (Virdis et al., 2010). It was observed that three stages of patients and it was found that pre hypertensive patients were most and the similar observation were also found (Collier et al., 2012) The physician used trade names frequently in the prescription which was not the same in other studies. If generic names were used it could decrease the financial burden on the patient. Monotherapy was commonly used which reduced the incidence of adverse effect and also the cost for the patient. As in other studies beta blockers were commonly prescribed and atenolol was used for most patients. This could be due to the fact that beta blockers do not cause reflex tachycardia like calcium channel blockers and atenolol is cardio selective. The adverse effect profile of beta blockers is better than calcium channel blockers (Nguyen et al., 2010). My study provides just the baseline data, I recommend more such studies with more parameters of analysis to provide regular feedback to physicians and health care professionals. This can lead to rationale drug prescribing pattern for hypertension.

CONCLUSION

The major findings of the present study conducted in Government hospital to know the prescription pattern of antihypertensive are as follows:

i. Hypertension was more prevalent in male, smoker and age group of 45-59 years.

ii. Most of the patients diagnose to hypertension were in pre-hypertensive stage.

iii. Trade names were frequently used in the prescription

iv. Monotherapy were common mode in the prescribed antihypertensive drugs

v. The Frequency and percentage of two drug combination were found maximum

vi. Among individual class of antihypertensive drugs beta blocker were prescribed most then

the calcium channel blocker, ACE inhibitor, Diuretics, Angiotensin II Blocker and alpha blocker.

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