

Original Research Article

Antihypertensive Drugs Utilization Pattern in Clinic of Remote Village of Nepal

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ABSTRACT

Background: A variety of newer drugs are available in market for hypertension, the quality of life for these patients has been altered for the better. Not many studies are conducted in Nepal regarding drug utilization of antihypertensive in remote villages and hence this study was planned.

Method: A pilot study was conducted in a private polyclinic located in village named Bhimad, which is located in Tanhun district of Nepal. One hundred patients with hypertension were chosen randomly and the prescription was analyzed. Specialized pro forma was designed for the data collection where the variables such as age, sex, drugs used and also regarding the names of drugs used (generic or trade) were included. The data was analyzed using descriptive statistics.

Result: One hundred patients were recruited for the study. We found trade name more commonly being used than generic name (81% vs. 19%). Data showed that 54% were females and 46% were males. Beta blocker was used most frequently (43%) followed by calcium channel blockers (22%). Monotherapy seemed to be practiced more than combination therapy (69%).

Conclusion: Beta blockers followed by calcium channel blockers and then angiotensin converting enzyme inhibitors were three common groups of drugs used in hypertension. Studying pattern of drugs prescription are powerful resources to ascertain the role of drugs in society. Occurrence of polypharmacy was seen very minimal.

Keywords: Drug utilization, Hypertension, Antihypertensive drugs.

INTRODUCTION

Globally, nearly one billion people have high blood pressure (hypertension); of these, two-thirds are in developing countries. Hypertension is one of the most important causes of premature death worldwide and the problem is growing; in 2025, an estimated 1.56 billion adults will be living with hypertension. Hypertension kills nearly 8 million people every year, worldwide and nearly 1.5 million people each year in the South-East Asia (SEA) Region. Approximately one-third of the

adult population in the SEA Region has high blood pressure. ^[1]

Worldwide, non communicable diseases (NCDs) surpass communicable diseases as causes of death. ^[2] NCDs such as cardiovascular diseases (CVDs), cancers, chronic respiratory illnesses and diabetes account for more deaths than communicable illnesses such as diarrhoea, HIV, tuberculosis, childhood infections or malaria, and maternal, perinatal or nutritional conditions. Nearly two thirds of the 57 million deaths globally in 2008

were due to NCDs [3] Furthermore, nearly 80% of these deaths occurred in low-and middle-income countries, imposing a massive challenge to the already struggling health-care systems in these countries. NCDs also negatively impact the socioeconomic status and progress of these countries, as the population most affected is younger than 60 years of age. [3]

Hypertension is one of the leading risk factors for CVD and the prevalence of hypertension has been increasing in the South Asian region including Nepal. [4] Despite rapid urbanization, about 83% of Nepal's inhabitants live in rural areas. [5] Few studies have attempted to describe the burden and determinants for hypertension in rural Nepal and such data are limited in the South Asian context. Exploration of such data in rural Nepal will help to understand the etiology of CVD in a population at the cusp of the epidemiologic and nutrition transition, with findings that may be generalizable to other parts of rural South Asia.

The core goal of treatment should be the prevention of the important endpoints of hypertension. Choosing more expensive agents where cheaper one would be equally effective may have a negative impact on the national healthcare budget. Therefore studies of drug utilization which evaluate the medical, social and economic outcome of drug therapy are useful. [6] World Health Organization (WHO) defined drug utilization research in 1977 as the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences. [7]

The prevalence of (non communicable disease) NCDs is increasing in Nepal. In 2008, nearly 50% of total deaths in Nepal were estimated to be due to NCDs, and CVD accounted for 25% of these deaths. Hypertension, one of the major risk factors for CVD, was estimated to be present in 27.8% of Nepalese adults aged 25 years and above.

[8] Because of the lack of reliable national data, these are World Health Organization (WHO) estimates using data from other countries and country-specific characteristics. [8] Limited prevalence studies from Nepal in the past decade indicate a comparable prevalence and agreement with the general trend of increase in CVD and its risk factors over the years.

Research in this field aims to analyze the present state and the developmental trends, of drug usage at various levels of the health care system, whether national, regional, local or institutional. Drug utilization studies may evaluate drug use at a population level, according to age, sex, social class, morbidity, among other characteristics. [9]

The study aims at finding the prescription pattern of antihypertensive in an outpatient clinic in developing countries. The present study was conducted in order to know the current trend in the prescription of antihypertensive drugs in rural areas as not many studies have been conducted in this regard. This kind of studies highlights the lacunae in the present prescribing practice of physicians and helps in improving the health care of the country.

MATERIALS AND METHODS

A pilot study was carried out in a private clinic of village know as Bhimad located in western region of Nepal. Consent was taken from the doctor in charge of the clinic before starting the study. Forty patients with hypertension were chosen randomly and their prescriptions were analyzed. We used the following criteria for the study:

Inclusion Criteria:

1. Patients diagnosed with hypertension according to the Joint national guideline (JNC) guidelines with no other co morbid conditions.
2. Patients of either gender.

3. Patients above 18 years of age.

Exclusion Criteria:

1. Patients with other co morbid conditions.
2. Patients who did not receive antihypertensive treatment.
3. Patients below 18 years of age.

The data was collected in a pre-designed pro forma designed for the study. The pro forma included variables such as age, sex, drugs used, and whether the names of the drugs used in the prescription were generic or trade. The data was analyzed using descriptive statistics.

RESULTS

A total of 100 patients who met the inclusion criteria were included in the study. As shown in the figure there were more women than men found who suffered from the hypertension in our study.

Table 1: Sex distribution

Range (years)	Male	Female	Total (%)
30-40	6	5	11%
40-50	20	22	42%
50-60	15	20	35%
60-70	4	4	8%
70 above	1	3	4%

Table 1 enumerates that most of the patient were between the age group of 40-60 years (77 %). Analyzing data with respect to the gender we found the similar result that is 40-60 years.

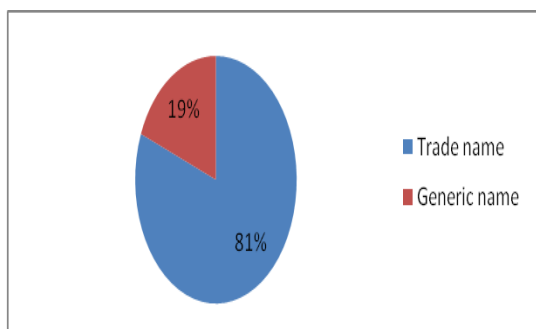


Figure 1: Name used in prescription

It was observed that most of the prescriptions had trade names (81%) as seen in figure 1 with direct negative effect on the economy of both the patient and the country. While figure 2 displays that monotherapy was the common prescribing

pattern (69%). Which shows positive attitude of practitioner towards reducing the adverse effect associated towards unwanted multiple drug therapy.

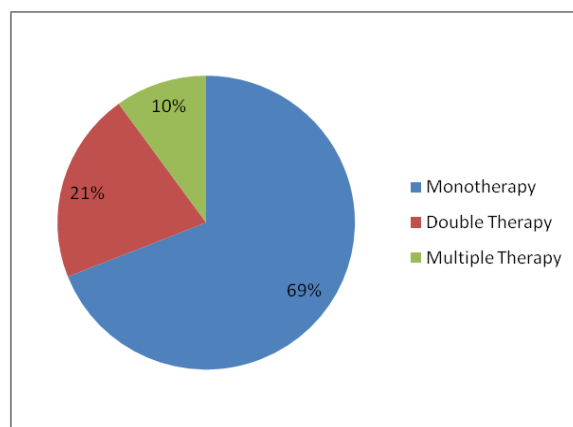


Figure 2: Number of drugs prescribed

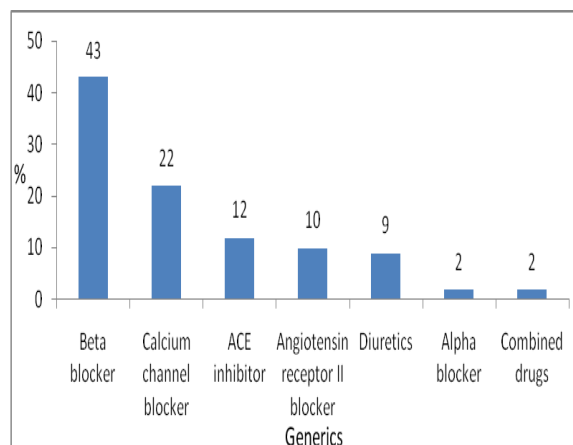


Figure 3: Classes of drugs prescribed (percentage vs. generics)

Figure 3 elaborates that the beta blocker (43%) were the most commonly prescribed drugs followed by calcium channel blockers (22%). Alpha blockers and combined drugs fall into the least prescribed group with the prescription percentage (%) of 2 only.

It was found that among the beta blockers atenolol was most commonly used. While in case of calcium channel blockers it was only amlodipine used in all the cases. Enalapril was the ACE inhibitor frequently prescribed and losartan in case of angiotensin receptor blockers. Among the alpha blockers it was prazosin and diuretics it was hydrochlorothiazide. The combination drug included hydrochlorothiazide and losartan.

DISCUSSION

A number of reports suggest that cardiovascular disease and hypertension are rapidly increasing both in urban and rural areas of South Asia, [10-13] yet there have been few population based studies and prevalence estimates vary widely. Low and middle-income countries bear a large burden of cardiovascular disease (CVD), accounting for 80% of the global CVD-related deaths and 87% of disability adjusted-life years lost. [12] CVD rapidly has become a major cause of mortality and morbidity in low income South Asian countries as well. [10,11,15] In developed countries, age adjusted death rates from CVD are declining due to preventive interventions and improved treatments. [14,16] The study conducted by us observed that hypertension was more prevalent in women than in men in rural areas which was in concurrence with the study done by R J Khan *et al.* [17]

Most of the patient was in the age group from 50 to 65 among both the genders this could be due to the fact that hypertension is more common in this age group. Such observation was resulted in the study done by Hari Babu *et al.* [18] Our study also revealed that brand name was used frequently rather than the generic name. Using generic name could reduce the costing of medication. [19] Using the trade name seemed to be effecting directly as it increases the financial burden on the patient. [19] On the other hand the study showed that monotherapy was given mostly which reduced the adverse effect associated with the drug and also the cost of the patient. A study showed that atenolol, a beta blocker was more commonly prescribed in comparison to other antihypertensive drugs. [18] The treatment guidelines DDA recommends diuretics as the first line therapy for the treatment of hypertension without co morbid conditions. But in contrast the study here holded diuretics as the least prescribed in antihypertensive class of

drug. The possible reason could be that most of the patients in our study were in the elderly age group and diuretics have advantage over glucose homeostasis and lipid profile. [20]

More such studies should be recommended in the bigger health centers to give the better projected drug utilization pattern in developing country like Nepal which in turn will help in the treatment strategies in the management of hypertension and also help in the effective use of the health care budget. Lastly we can say that beta blocker were the most commonly prescribed drug, study also resulted that polypharmacy was comparably low which showed good sign of prescribing technique but using trade name increased the cost treatment for the patient. Standard guidelines were not properly followed in the prescription of antihypertensive which leads to irrational drug prescription. Our study here is just a baseline data. We recommend more such studies with more parameters of analysis to provide regular feedback to physicians and health care personnel's. This can lead to rationale drug prescribing pattern for hypertension.

CONCLUSION

Beta blockers followed by calcium channel blockers and then angiotensin converting enzyme inhibitors were three common groups of drugs used in hypertension. Studying pattern of drugs prescription are powerful resources to ascertain the role of drugs in society. Occurrence of polypharmacy was seen very minimal.

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