

MANAGEMENT OF ESSENTIAL HYPERTENSION: PRESCRIBING PATTERN AND DRUG USE IN A TERTIARY HEALTH INSTITUTION

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ABSTRACT

A Five-year retrospective survey was carried out on the prescribing pattern and drug use in the management of essential hypertension in a tertiary health institution in Lagos State. The study involved information gathering and analyses of data generated from 244 case files of out-patients with essential hypertension, and who visited the hospital regularly (fortnightly or monthly) for at least six months. The prescriptions were evaluated using WHO prescribing indicators and compared with derived standard values.

The average number of drugs prescribed per encounter was 3.9. Encounters with injections were 5.2%. The number of drugs prescribed by generic name and from the National Essential Drugs List (NEDL) was 42% and 78.2% respectively. 13% of prescribed drugs were deemed over-dosage or under-dosage. Only 34.4% of prescriptions had additional non-pharmacological approach to hypertension management. Prescriptions containing drugs of doubtful efficacy and/or multiple side effects were 21.4%. Calcium channel blockers were the most prescribed drugs. 19.3% of the encounters resulted in polypharmacy. Only 8.6% of the cases involving use of diuretics had concomitant administration of diuretics. The

findings suggest some degree of over-prescribing and non-compliance with WHO guidelines on drug choice and use for the management of essential hypertension. There is an urgent need to enhance the quality of care given to patients through continuing education on current practice requirements and rational drug use.

Key words: Hypertension, Drug use, Prescribing, Tertiary Health Institution.

INTRODUCTION

Hypertension is a state of arbitrary levels of blood pressure (BP) above which intervention shows reduced risk of complication(1). Essential hypertension comprises the condition in which no specific cause was identified. It is the most common non-communicable disease treated by Nigerian physicians(2). The prevalence increases with age and is greater in urban than in rural communities. It is common at both ends of socio-economic groups than in the middle class(3). The risk of cardiovascular complication is proportional to the degree of BP elevation. The benefits of anti-hypertensive drugs as well as the non-pharmacological approach in lowering BP and preventing or delaying cardiovascular morbidity and mortality are well documented(4,5,6,7). Complications associated with BP elevation principally affect the cardiac, cerebral, ocular,

vascular and renal systems(8).

No significant difference in BP exists between sexes in early life, but men tend to display a higher average level beginning at adolescent. The difference narrows later in life and the pattern may even be reversed(9). Family history of elevated BP is one of the strongest risk factors for future development of hypertension. A strong, direct and consistent relationship exists between body weight and BP, since excessive weight is associated with a 2 to 6 - fold risk of developing hypertension(6). Alcohol consumption is consistently related to high BP(8,10,11,12,13). Reduction of salt intake is an effective way of reducing essential hypertension both as a public health problem and in individuals(12). There is an inverse relationship between BP and dietary intake of potassium, hence the need for potassium supplement when diuretics are administered. Non-pharmacological approach such as nutritional and life style changes, plays important role in reducing BP(1,14). The general risk for a hypertensive patient increases substantially if additional risk factors such as smoking, disturbed glucose tolerance, obesity and hypercholesterolaemia are present(15). Stepped care approach to management of mild hypertension recommends two principal guidelines based

initially on use of different classes like diuretics, α - and β -blockers, calcium antagonists, angiotensin converting enzyme inhibitors (ACEI), and others (5). Inadequate response after a 1-3 month interval is then followed by increasing dose of first drug to maximum; adding an agent from another class, or discontinuation of the initial drug and substituting with a drug from another class. Substitution is preferable for simplicity of therapy and to avoid unnecessary drug administration (16). A number of plant materials are known to exert anti-hypertensive activities even locally.

Achievement of desired goal in hypertension management would put convenience, cost and increased patient compliance into consideration. Irrational prescribing and dispensing are characteristic features of health institutions in developing countries (17,25) which result in polypharmacy and polytherapy, sub-optimal or excessive use of antihypertensive, unnecessary drug combinations, use of drugs of doubtful efficacy and low benefit-cost ratios. Improving rational drug use is therefore a matter of life and death since people are dying because they are misdiagnosed, under-dosed or over-dosed (18). As drug demand is generated by health professionals' prescribing habits there is a need to standardize prescribing as a way of reducing morbidity, increasing longevity and improving quality of care (19). Rational drug use provides a strong basis for effective management of elevated blood pressure. WHO drug use indicators for out-

patient facilities have been useful in investigating core and complementary drug use in health facilities (20, 21). WHO prescribing indicators have been used to evaluate rational drug use in health care institutions in Nigeria (17,22). Inappropriate use of antihypertensive agents could exacerbate morbidity and mortality rates, especially in a population that has been long under socio-economic and political stress. In terms of treatment outcomes and preferences, calcium channel blockers like nifedipine are found to be more effective in blacks than in other races. α - and β -blockers have well documented safety and efficacy margin. Antihypertensives of doubtful efficacy and/or many side effects are in common use. Over dosage and underdosage continue to be a problem due to over-or underprescribing. Combined use of drug therapy and non-pharmacological approach is very beneficial to patients. This retrospective survey evaluates the prescribing and drug use practices for antihypertensives in the tertiary institution with a view to comparing them with the derived standard values for our environment (23), and also to providing preliminary information for future intervention.

MATERIALS AND METHODS

Case files of hypertensive patients who were diagnosed and treated for essential hypertension in the out-patient clinic of the institution; and who followed up fortnightly or monthly for at least six months, were used for the study. 244

patients who attended clinic between January 1994 and December 1998 fulfilled these criteria. Data collection was done by careful study of each case file and extraction of necessary information for further analyses. The number of drugs prescribed per encounter, the respective percentages of drugs prescribed as injections, by generic name and from National Essential Drugs List were compiled and calculated. Other parameters investigated include the compliance to the use of WHO guidelines for the management of mild hypertension. The frequency of use of different classes of antihypertensive agents, over-dosage and under-dosage prescriptions, polypharmacy, and unnecessary drug combinations were investigated.

RESULTS AND DISCUSSION

Of the 244 case files investigated, 55% of the patients were males and 45% were females. Some prescribing indicators generated from the study over the five-year period were presented in the tables. The average number of drugs per encounter was 3.9, which is more than twice the derived standard value developed in a project area (23). The number of drugs prescribed by generic name was 5%. The low figure is expected since injections are only used for emergency hypertensive cases in the institution.

However, the high use of injections (15%) in 1995 could be due to the high number of emergency cases handled during the period, probably precipitated, by the prevailing socio-economic and political

climate in the country in the later part of 1994, through 1995. 78.2% if the prescribed drugs were in the National Essential Drugs List (24) contrary to the expected 100% NEDL prescribing. The indicators compare with over prescribing that is characteristic of most developing nations (21) except for injectables.

Calcium channel blockers (CCBs) e.g. nifedipine were the most frequently prescribed of the 5 major classes of antihypertensive agents. It is consistent with previous findings that CCBs are more effective in blacks than in other races. There was no adherence to WHO guidelines for the management of hypertension, considering the high use of other agents outside the first-line drugs. The low use of a- and B-blockers (0.4% and 9.9% respectively) remains unimpressive, despite well documented safety and efficacy margin of these agents. It would appear that the choice of prescribed drugs is influenced more by the product advertising

than the pharmaco-economic benefits. An average of 12.8% prescribed antihypertensives were deemed over-dosage or under dosage. This has far reaching implications of undermining desired therapeutic goals. Antihypertensives of doubtful efficacy and/or many side effects (e.g. brinerdin, methyldopa) were as much as 21.4%. In many cases the regimens were below the recommended daily dosage. Only 34.4% of prescriptions contained at least one recommended non-pharmacological approach.

This approach should be highlighted regularly because of its complementary role in the management of hypertension. Majority of the cases where the approach was emphasized as an adjunct had their BP well controlled. An average of 19.3% of the encounters contained polypharmacy. Fixed dose antihypertensive agents (e.g. moduretic, tenoretic) were

used in 39.3% of the encounters over the period; with a gradual decline probably due to increasing costs. There was no case of therapeutic duplication. First therapeutic approach controlled BP in only 44.7% of the cases.

Although WHO guideline expects minimal number of drugs prescribed per encounter, it should also be noted that some of these patients visit the hospital with other ailments like anemia, fever, malnutrition and malaria; thereby making polypharmacy inevitable. Some cultural and religious values/practices make patient compliance to prescribed drugs difficult. e.g. fasting. Preference to certain dosage forms e.g. injection does exist; and even when given as a placebo, the psychological effect on such patients seems positive. There is need to put into consideration the environment and needs of the people in the in developing such guidelines.

Table 1: Some Core Drug Use Indicators for Antihypertensive Agents

INDICATION	1994	1995	1996	1997	1998	AVERAGE (OVER 5YRS)
Average Number of Drugs Prescribed per Encounter	3.8	3.8	5.3	4.5	3.1	3.9
Drugs Prescribed by Generic Name (%)	45.3	36.1	49.7	51.6	30.9	42.0
Injections Prescribed (%)	3.0	2.3	15.0	7.0	2.1	5.2
Drugs Prescribed from NEDL (%)	80.2	91.3	91.4	44.6	83.3	78.2

Table 2: Prescription Pattern Based on Class of Antihypertensive Agent

Class of Drugs	1994	1995	1996	1997	1998	AVERAGE (Over 5yrs)
Diuretics	21.6	29.0	22.9	25.6	23.1	24.7
CCBs	23.3	24.6	24.3	28.2	34.3	27.0
ACEI	3.4	4.4	15.7	12.8	11.1	8.6
B-Blockers	0.9	0.0	0.0	2.6	0.0	0.4
Other Antihypertensives	35.5	35.5	31.4	18.0	24.1	29.4
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0

Table 3: Other Useful Prescription Parameters for Hypertension Management

PARAMETERS	1994	1995	1996	1997	1998	AVERAGE (Over 5 yrs)
% Drugs deemed over dosage or under dosage	11.2	12.2	8.6	12.6	13.9	12.8
% Prescription where 1st Therapeutic Approach controlled Blood Pressure	67.2	42.1	27.6	25.7	43.6	44.7
Containing A. H. of Doubtful efficacy or Many side effects	28.5	25.2	24.3	22.6	12.0	21.4
% Prescription containing at least one Non-pharmacological approach	32.8	29.8	58.6	34.3	29.0	34.4
% Polypharmacy encountered	14.8	14.0	34.5	31.4	14.5	19.3
% Prescription in which fixed dose antihypertension agent was used	62.3	59.7	13.8	20.0	21.0	39.3
% Cases of therapeutic duplication encountered	0	0	0	0	0	0

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