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## Assessment of Knowledge Intern Pharmacist on Interaction between Nsaids and Antihypertension in Hospitals in Jos, Plateau State

Bana Daniel J, Mabur Sylvanus B and Ugboja Godfrey\*

Department of Pharmacy, Jos University Teaching Hospital, Jos Plateau state, Nigeria

\*Corresponding author: Bana Daniel Jamu, Department of Pharmacy, Jos University Teaching Hospital, Jos Plateau state, Nigeria, E-mail: banadaniel01@gmail.com

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### ABSTRACT

**Introduction:** Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcome that is, elimination or reduction of a patient symptom, arresting or slowing a disease progress and preventing a disease or symptom in order to improve patient's quality of life). Beyond the hospital pharmacy set up, the concept of pharmaceutical care has influenced community pharmacy practice. This study was aimed at assessing pharmacist's knowledge of the interactions between these classes of medications, identification of the drug related problems in such patients taking these medications and their methods of resolving such problems.

**Method:** A descriptive cross sectional study among Intern Pharmacists working in Hospitals in Jos University Plateau state and who were willing to give their informed consent were included in the study. The data was collected and analyzed using Statistical Package for Social Sciences (SPSS) version 26.0.

**Results:** Most of the respondents had good knowledge of side effects from antihypertensive use. Majority of the respondents claimed prescriptions containing anti-hypertensive and NSAIDs were commonly seen in their respective places of practice. One of the major hindrances to offering effective pharmaceutical care services to these patients was poor communication resulting from patient's age.

**Conclusion:** Based on the current study, most pharmacists were knowledgeable about the interactions between NSAIDs and Antihypertensive.

**Keywords:** Hypertension; Pharmacists

### INTRODUCTION

Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcome that is, elimination or reduction of a patient symptom, arresting or slowing a disease progress and preventing a disease or symptom in order to improve patient's quality of life. Beyond the hospital pharmacy set up, the concept of pharmaceutical care has influenced community pharmacy practice.

In many countries community pharmacies are places where individuals may obtain health advice and assistance in managing their disease states with medication.

Hypertension is one of the major health problems affecting about one billion people across the globe and it is a common medical condition in older people. Similarly, arthritis is also the disease of elderly people, for which Non-Steroidal Anti-inflammatory Diseases (NSAIDs) are prescribed frequently.

In other words, the use of NSAIDs and development of hypertension are both associated with old age. NSAIDs are commonly used and are the first-line treatment in arthritis.

However, their long term use can contribute to high blood pressure either by antagonizing antihypertensive drugs or by affecting the renal functions and subsequent stimulation of renin angiotensin system leading to hypertension. NSAIDs block both cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2) enzymes, which leads to a reduction in prostaglandin formation.

Drug-induced hypertension has been found to be associated with NSAIDs due to the renal effects of these drugs. Specifically, NSAIDs cause dose-related increase in sodium and water retention and this effect is also seen 10 with COX-2 selective drugs such as Celecoxib. Because NSAIDs block

the production of the COX-1 and COX-2 prostaglandins, renal side effects are not uncommon, 9,11 occurring in 1-5% of NSAID users. All NSAIDs have risk of increased fluid retention due to inhibition of COX-2's 12 natriuretic effects and increased sodium retention. Many studies have reported the negative effect of NSAIDs on blood pressure control properties of Angiotensin Converting Enzyme Inhibitor (ACEI).

Polonia (1997)<sup>15</sup> reported that NSAIDs affect the efficacy of antihypertensive drugs but they have little or no effect on calcium channel blockers, therefore, suggested the use of calcium channel blockers for patient using NSAIDs concurrently [1].

A lot of studies have been carried out on pharmaceutical care services in Nigeria ranging from pharmaceutical care standards and attitude of pharmacist towards Pharmaceutical Care but due to the widespread use of NSAIDs with/without prescription by the populace and being one of the medications used in management of arthritis which occur as a common comorbid condition with hypertension, patients with hypertension may be at risk for aggravated blood pressure and renal "insufficiency effects" caused by these drugs [2].

This study was aimed at assessing pharmacist's knowledge of the interactions between these classes of medications, identification of the drug related problems in such patients taking these medications and their methods of resolving such problems [3].

**Methods:** The study was a cross sectional study involving administration of a structured online questionnaire to Intern pharmacists practicing in hospital in Plateau State Nigeria.

**Study population:** Intern pharmacist who are currently carrying out their internship program in Jos Plateau state

**Study design:** The study was a cross sectional study using a structured online questionnaire.

**Sample size:** The population size was the entire intern pharmacist who consented to fill the online questionnaire was used. However, a total of 100 questionnaires were retrieved and analyzed.

**Inclusion criteria:** This study included all intern pharmacists practicing in Jos metropolis. It excluded every other pharmacist in other areas of pharmacy practice and those outside the city of Ibadan.

**Study period:** The questionnaires were administered and retrieved within 2 months (October-November, 2021).

**Data analysis:** Data was analysed with descriptive statistics using Statistical Package for the Social Sciences (SPSS) version 26 for windows (Tables 1-5).

**Table 1:** Demographic data.

		Frequency	Percentage (%)
<b>Gender</b>	Male	65	65
	Female	35	35
<b>Marital Status</b>	Single	95	95
	Married	5	5
<b>Age(In Years)</b>	21-25	42	42
	26-30	58	58
<b>Level Of Education</b>	Bachelor of Pharmacy	100	100
<b>Work Experience(In years)</b>	0-5	100	100
From the demographic data of the participant majority of the patient 65% were Male and 35% were Female. Majority of them 95% were single. 58% of the participant fell within 26-30years of age.			

**Table 2:** Common side effect complaints of anti-hypertensives from patients noted by pharmacists.

Anti-hypertensive side effects	Frequency of Respondents	Percentage (%)
Decreased libido with methyl dopa and Nifedipine	85	85
Cough with ACEIs	100	100
Hypokalemia with Amiloride	32	32
Angioedema with Thiazide diuretics	40	40
Frequent urination with diuretics	100	100
Hypoglycaemia and bronchoconstriction with beta blockers	50	50

**Table 3:** Measures taken by pharmacists to resolve complaints of side effects by patients.

Measures of resolving side effect complaint by patients	Frequency of Respondents	Percentage(%)
Reassure the patient that side effects will subside as therapy continues	100	100
Taking full medication History of the patient	84	84
Ask the patient to stop the medication without the consent of the prescriber	10	10

Document the intervention made on such complaint	95	95
Arrange follow up appointment with the patient within a reasonable time	90	90
In handling the side effect complaints, which could involve more than one measure, most of the respondents (100%) indicated that they usually reassured patients that the side effect will reduce as the therapy continues (Table 3).		

**Table 4:** Knowledge of respondents on co-morbid arthritis and hypertension pharmacotherapy and pathophysiology.

Items	Yes	No	I don't know
The predominant drug of choice for the symptomatic relief of arthritic pain is NSAIDs	95(95)	0(0)	5(5)
NSAIDs are contraindicated in all controlled hypertension	15(15)	65(65)	20(20)
NSAIDs cannot induce hypertension	25(25)	65(65)	10(10)
NSAIDs effects on hypertension are dose dependent	75(75)	10(10)	15(15)
All hypertensive patients taking NSAIDs should be counseled on adherence to the recommended dose	95(95)	0(0)	5(5)
New generation of NSAIDs (COX 2 selective inhibitors) are safer in hypertension	80(80)	10(10)	10(10)

**Table 5:** Hindrances to the delivery of pharmaceutical care services to hypertensive patients with arthritis.

Hindrance	Agree	Neutral	Disagree
There is usually no time to adequately attend to every hypertensive patient with arthritis that requires pharmaceutical care	35(35)	40(40)	25(25)
Most patients in this category are old and find it hard remembering things thus making the taking medication history difficult	70(70)	15(15)	15(15)
Difficult in communication with patients arising from language barrier	75(75)	5(5)	20(20)
Pharmacists are not taking up the service of rendering pharmaceutical care to these patients because they lack clinical knowledge of co -morbid hypertension and arthritis	30(30)	20(20)	50(50)
Some of these patients do not value pharmaceutical care services	45(45)	40(40)	15(15)
Rendering pharmaceutical care to these patients properly is often opposed by the physician	55(55)	20(20)	25(25)

## DISCUSSION

Pharmacist's responsibilities are shifting from product related to focusing on patient care as claimed by majority of the respondents and one of the major activities they carried out in implementing Pharmaceutical care is interacting with the patients to have information on their medical condition(s). Most of the respondents had good knowledge of side effects from antihypertensive use. The strategy employed by the pharmacists in handling drug-related problems in chronic diseases varied. Less than one third of the respondents claimed they asked patient to stop taking the drug without the consent of the prescriber and this may be due to the limited contact between hospital pharmacists and physicians (Chua SS,2012). However, majority of the respondents claimed they counseled patients on the side effects of their medication(s) and in addition arranged a follow-up appointment with the patients within a reasonable time. Also documenting the intervention made on complains and taking full medication history was also measures taken by the pharmacist to resolve complaints of side effects. This method of addressing side effects is appropriate and has been tried in other part of the world with succes. Majority of the respondents claimed prescriptions containing anti-hypertensives and NSAIDs were commonly seen in their respective places of practice [4-6].

This is contrary to a study by Awodele et al carried out in a tertiary health care facility Lagos which indicated a lower percentage of this combination in prescriptions in the facility studied. Pharmacist-physician relationship is important in Pharmaceutical care and this relationship is most often initiated by the pharmacists by improving their inter-professional communication techniques in order to communicate more effectively with the other members of the health care team. The idea of substituting non selective COX -1 NSAID with selective COX-2 NSAID as indicated by some of the respondents and its choice as being a safe option compared to COX-1 (Table 4) may not produce appreciable beneficial effect on the blood pressure of such patients because studies have shown COX-2 selective NSAIDs implicated in increase blood pressure although Celecoxib was noted to have a greater effect on increased B.P [7-10].

It is also worrisome that good number of the respondents did not know that hypertensive patients with arthritis on ACEIs, diuretics and NSAIDs ('the triple whammy') are at risk of renal damage. This is established information, that a pharmacist who offer Pharmaceutical care services to hypertension with comorbid arthritis should know. American Family Physician guideline recommends that the serum creatinine of any patient using combination of ACEI or ARB at the initiation of NSAID should be monitored.

One of the major hindrances to offering effective pharmaceutical care services to these patients was poor communication resulting from patient's age. The comorbid of hypertension and arthritis is common in the elderly, some find it difficult to remember things thus making communication and taking medication history difficult. Poor communication between the patient and healthcare practitioner has been associated with drug adverse effect in the elderly. Farris et al study in assessing Pharmaceutical care practice around the world revealed that a major hindrance to the practice of pharmaceutical care in Europe is a lack of reimbursement of the pharmacists. Also rendering pharmaceutical care to patients is often opposed by the physician.

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