Assessment of Prescribing Pattern for Hypertension and Comparison with JNC-8 Guidelines-Proposed Intervention by Clinical Pharmacist

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ABSTRACT
Background: Hypertension is a common disorder that if not effectively treated results in greatly increased probability of coronary thrombosis, strokes, and renal failures. It is estimated that the prevalence of hypertension in India is about 25% among urban adults and 10% in the rural areas. The lifetime risk of developing hypertension is estimated to be 90%.¹ To assess prescribing pattern in hypertensive patients and assessing the rationality in regards to JNC-8 Guidelines in a tertiary care hospital.

Methodology: It was a prospective, observational study conducted for 6 months with of 75 hypertensive prescriptions with diabetes mellitus and/or chronic kidney disease who get admitted in the hospital were screened for the study. Result: In a total of 75 prescriptions, 14 (18.7%) prescriptions were found in the age group of less than 50 years, in which 10 (13.3%) were males and 4 (5.4%) were females and 36 (48%) prescriptions were comes under the age group between 51–65 years, in which 26 (34.7%) were males and 10 (13.3%) were females. Also 25 (33.3%) prescriptions were comes under the age group of above 65 years, in which 20 (26.7%) were males and 5 (6.7%) were females. Among mono therapy 22 (47.8%) prescriptions had diuretics as antihypertensive drug followed by CCB 11 (24%), ARBs 7 (15.1%), β blockers 3 (6.5%), ACEIs 1 (2.2%), α blockers 1 (2.2%) and α+β blockers 1 (2.2%). When compared with JNC 8 Guidelines it was observed that 28% of prescriptions were rational and 56% of prescriptions were irrational. Regarding the perception of physicians towards JNC 8 guidelines it was found that majority were not following JNC 8 guidelines.

Key words: Hypertensive’s, Combination therapy, Co-morbidity, JNC 8

INTRODUCTION
Hypertension is a common disorder that if not effectively treated results in greatly increased probability of coronary thrombosis, strokes, and renal failures. It is estimated that the prevalence of hypertension in India is about 25% among urban adults and 10% in the rural areas. The lifetime risk of developing hypertension is estimated to be 90%.¹

Hypertension is a common healthcare problem. The prevalence among adult population has been estimated to range from 4.75% to 25.6% and constitutes 1.8% to 3.8% of total consultations in primary health center. Because of various types of adverse reactions, benefit, contraindications, and cost of the selection of appropriate drug is very important one.² High Blood pressure remains a Major risk factor for premature Death and disability. 62% of Stroke and 49% of Myocardial Infarctions has been attributed with Increased risk of elevated Blood pressure.³

As per JNC-8 Report, persons Older than 50 years, Systolic blood pressure of More than 140 mmHg is a much more important Cardio vascular disease and it recommends Life style modifications to prevent Cardio vascular disease. Thiazide diuretics are used for Uncomplicated Hypertension. Followed by ACEIs, Angiotensin Blockers receptors, Calcium channel blockers are used. The study reports that, the Control of Hypertension was improved by motivation when patient have positive experience with and Trust in the Clinicians.⁴ Polypharmacy was observed as one of the reason for variations in disease state.⁵

CAUSES
As per JNC-8, the causes of Hypertension are Improper Blood pressure Measurement, Volume Over loaded, Pseudo tolerance, Excess sodium intake, Non-adherence, Inadequate doses of drugs, Inappropriate combinations, Amphetamines, Sympathomimetic, Oral contraceptives and Tobacco. Obesity and excess alcohol intake are associated causes of Hypertension.⁴ The DASH diet eating plan has been proven to lower blood pressure in studies sponsored by the National Institute of Health. The DASH plan incorporated more fruits and vegetables, low fat or non-fat dairy, beans, and nuts than the others studied. The diet reduced systolic blood pressure by 6 mmHg and diastolic blood pressure by 3 mmHg in patients with normal blood pressure.⁴ The main purpose of this study is to assess prescribing pattern in hypertensive patients and assessing the rationality in regards to JNC-7 Guidelines and perception of physicians about JNC 8 guidelines in a tertiary care hospital.

METHODOLOGY
It was a prospective, observational study conducted for 6 months. The study was conducted at KG Hospital and Post Graduate Medical Institute, Coimbatore, a 350-bedded tertiary care hospital. A total of 75 hypertensive prescriptions with diabetes mellitus and/or chronic kidney disease who get admitted in the hospital were screened for the study.
When compared with JNC 8 guidelines for hypertension, it was found that 42(56%) of prescriptions falls into the group of irrational, 12(16%) of prescriptions were semi rational and 21(28%) of prescriptions were rational. When comparing relationship between co-morbidities and rationality 21(28%) prescriptions were following JNC8 guidelines (rational) out of which 17(22.6%) patients having DM as co-morbidity and 42(56%) prescriptions were irrational out of which 31(41.3%) patients having DM as co-morbidity. When coming to semi-rational prescriptions, 7(9%) having both co-morbidities. When considering the relation between therapy and rationality, it was observed that 21(28%) prescriptions were according to JNC8 guidelines out of which 19(25%) prescriptions having mono therapy and 2(3%) having combination therapy. When considering irrational prescriptions (42(56%)) 27(36%) prescriptions were mono therapy and 15(20%) were combination therapy. There is no prescription having mono therapy in semi-rational and 12(16%) having combination therapy.

To analyze the perception of physicians towards the applicability of JNC 8 Guidelines over JNC 7 Guidelines in a clinical setting, a questionnaire was prepared containing 5 questions and distributed to physicians prescribing antihypertensive drugs. From the data obtained, it was known that 7 (35%) of physicians were comfortable in using JNC 8 guidelines whereas 13 (65%) were not comfortable in adapting JNC 8 guidelines while prescribing antihypertensive medicine.

CONCLUSION

This prospective, observational study on assessment of prescribing pattern for hypertension confirmed that mono therapy was prescribed than the combination therapy. Specify with the guidelines, Loop diuretics were the most frequently prescribed drug class followed by CCB, ARBs, beta blockers, ACEIs, Alpha blockers and α+β blockers. When considering combination therapy, two drug combination was prescribed more than three drug and four drug combinations. In two drug combination, CCB+α blockers was mostly prescribed. Diabetes mellitus is the most commonly occurring co-morbidity in hypertensive patients. When compared with JNC 8 Guidelines it was observed that 28% of prescriptions were rational and 56% of prescriptions were irrational. Regarding the perception of physicians towards JNC 8 guidelines it was found that majority were not following JNC 8 guidelines. The assessment of perception of physicians towards stated guidelines shows that 65% of the physicians were comfortable in adapting to JNC 8 guidelines while prescribing antihypertensive medicines. So, a more effective update of the knowledge is necessary. It also suggests a need of compliance by clinicians with JNC 8 guidelines. This confirms the need for clinical pharmacist in each department and aware the physicians to improve the adherence to new guidelines in clinical setting.

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CONFLICT OF INTEREST

The author declare no conflict of interest.
ABBREVIATIONS USED

JNC-8: Joint National Committee Report-8, CCB: Calcium channel blockers, ACEI: Angiotensin converting enzyme Inhibitors, CKD: Chronic kidney disease, DM: Diabetes mellitus.

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REFERENCES