parable to that of streptomycin (90 µg) against *E. coli.*

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General Prescribing Pattern of Antihypertensive Drugs in Patients Attending a Nagpur City Hospital

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The study was carried out to assess prescribing practice and general trend of hypertension among patients at Orange City Hospital and Research Institute, a tertiary critical care hospital, Nagpur. Prescription and complete records of hypertensive patients were monitored and data was filled as per WHO prescription auditing proforma. The study revealed that hypertension was mild (diastolic pressure 90-104 mm of Hg) in maximum number of patients (80.0 %). Both monotherapy (55.0 %) and combination therapy (45.0 %) were employed for the patients. Among monotherapy β-blockers and calcium channel blockers were mainly prescribed. Among combination therapy, two-drug combination (23.33 %) was most often prescribed and combination of β-blockers and calcium channel blockers was common. Highest prevalence of disease was found in the age group of 50-59 years. The study highlighted the current trend of prescribing antihypertensive drugs in Orange City Hospital and Research Institute, Nagpur.

Hypertension, defined as elevation of systolic and diastolic blood pressure to about 140/90 mm of Hg, afflicts up to 75-80% people; it is thus most common cardiovascular disease [1]. It is the most treatable risk factor for cardiovascular diseases, congestive heart failure, coronary artery diseases and renal failure. The various causes of hypertension can be listed as high salt intake, smoking and aicchol-ism, obesity, stressful life, renal, vascular and endocrine diseases, pregnancy induced hypertension and others.

Hypertension is subdivided into three categories based on the elevation of diastolic pressure as mild hypertension (90-104 mm of Hg), moderate hypertension (105-114 mm of Hg) and severe hypertension (≥115 mm of Hg)[1]. There

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are various drugs to treat hypertension such as β-blockers, calcium channel blockers, angiotensin converting enzyme (ACE) inhibitors, diuretics, α-blockers, central sympatholytics, vasodilators and angiotensin antagonists.

Various guidelines are available that recommended these different classes of drugs to treat hypertension[2,3]. The selection of these agents as first line drugs was debatable as choice of drug also depends on the associated disease and other profile of the patient. But the choice of antihypertensive in patients with various co-morbidities is now fairly well established[4].

The present study was conducted to establish the current prescribing pattern of antihypertensive drugs in Orange City Hospital and Research Institute (OCHRI), Nagpur. The OCHRI, a tertiary critical care hospital, caters the health needs of the people from Nagpur and nearby cities. Present pilot study was started after getting approval from the managements of the college and the OCHRI. Data was collected from Out Patient Department (OPD) and in patients including those in ICCU and structured according to WHO guidelines[5]. During the study period (Jan-April 2004), records of a total number of 100 patients were analyzed; out of which 60 were considered because they were chronic hypertensives and with some associated diseases like diabetes, ischemic heart diseases, asthma and renal/renovascular disorders..

Five drug selection indicators were selected for the present study which included percentage of male/female hypertensive patients, percentage of mild/moderate/severe

TABLE 1: DATA SHOWING PERCENTAGE OF TYPES OF DRUG THERAPIES, CATEGORIES OF HYPERTENSION AND UTILIZATION OF VARIOUS ANTIHYPERTENSIVE DRUGS.

Drug Selection Indicator	Number of patients (%)
I. Drug therapies	
Monotherapy	33 (55.0)
Two-drug combination therapy	14 (23.3)
Three-drug combination therapy	5 (8.3)
Four-drug combination therapy	8 (13.3)
II. Categories of hypertension	
Mild	48 (80.0)
Moderate	10 (16.7)
Severe	2 (3.3)
III. Utilization of antihypertensive drugs	
β-blockers	31 (51.7)
Calcium channel blockers	23 (38.3)
Diuretics	16 (26.7)
Platelet aggregation inhibitors	7 (11.7)
Angiotensin antagonist	4 (6.7)
ACE inhibitors	1 (1.7)
Central sympatholytics	2 (3.3)
α-blockers	2 (3.3)
Antihyperlipidemic	1 (1.7)

TABLE 2: DATA SHOWING PERCENTAGE OF MALE/FEMALE HYPERTENSIVE PATIENTS, EMPLOYING MONOTHERAPY/COMBINATION THERAPY.

Age group (y)	Male (N=34)	Female (N=26)	All patients (N=60)
<40	4 (66.6)	2 (33.3)	6 (10.0)
40-49	2 (28.6)	5 (71.4)	7 (11.7)
50-59	12 (70.6)	5 (29.4)	17 (28.3)
60-69	7 (53.9)	6 (29.4)	13 (21.7)
70-79	8 (53.9)	7 (46.2)	15 (25.0)
>=80	1 (50.0)	1 (46.7)	2 (3.3)
Monotherapy	20 (58.8)	13 (50.0)	33 (55.0)
Combination therapy	14 (41.2)	13 (50.0)	27 (45.0)

N refers to number of patients and figures in brackets indicate percentage.

hypertension, percentage of monotherapy/combination therapy, percentage of one/two/three drug combination therapy and percentage of the utilization of different categories of antihypertensive drugs.

The analysis of patients' data showed that hypertension was common in men (58.3 %) than in women (41.7 %). The percentage of mild hypertension was maximum i.e. 80.0%, moderate hypertension was 16.7 % and severe was lowest at 3.3% (Table 1). Maximum percentage of hypertensive patients was in the age group of 50-59 y. Monotherapy was prevalent (55.0 %) as compared to combination therapy (45.0 %) as depicted in Table 1. The percentage of combination therapy was almost equal in both the genders (Males-41.2 %; females-50.0 %) (Table 2). The combination therapy was observed in patients suffering from other associated cardiac or non-cardiac disorders like diabetes mellitus, bronchial asthma or some endocrine disorders. Since blood pressure is kept up by several interrelated factors, an attempt to block one of them tends to increase the compensatory activity by the others and hence combination therapy is more useful for treating hypertension[6]. The studies also showed that hypertension could be more easily controlled by combination therapy although the percentage of its utilization (45.0%) was less. Further, among the monotherapy, β-blockers (atenelol and metaprolol) and calcium channel blockers (amlodipine and nifedipine) are the two classes, which were most commonly used. In combination therapy, 23.3 %, 8.3 % and 13.3 % were prescribed as two, three, and four drugs respectively (Table 1). Among the two-drug combination therapy, nifedipine or amlodepine and atenolol combination was common and found to be very effective. In case of four-drug combination, amlodepine, furosemide, atenelol and losartan were most common. The percentage of different categories of the antihypertensive drugs was calculated from overall utilization pattern and is shown in Table 1.

According to the standard treatment guidelines[4], all the major categories of antihypertensives i.e. selective β_1-blockers, diuretics, calcium channel blockers, ACE inhibitors and angiotensin antagonist can be used as first-line agents in patients without co-morbidities. In case of associated diseases, ACE inhibitors and calcium channel blockers are prescribed to diabetics. In asthmatics, calcium channel blockers are indicated but β_1-blockers are contraindicated. In renal failure, calcium channel blockers and diuretics are preferred. In the present study, selective $\hat{a}_1$-blockers were most commonly used drugs (51.7%), since they are cardio selective. Atenelol and metaprolol were mainly used in the dose range of 50 and 100 mg, respectively. Near to it, percentage of calcium channel blockers was 38.3%, which were used in the dose range of 5-20 mg BD for nifedipine and 5-10 mg OD for amlodipine. The next drug category, which was commonly used, was diuretics (26.7%). The central sympatholytics, α- blockers, antihyperlipidemics and angiotensin antagonists were used in low percentage i.e. 1-7%. Although, ACE inhibitors are very effective, but its utilization was very less, only 1.7%. The recently discovered clopidogrel, a platelet aggregation inhibitor is also being used as supplementary drug for the treatment of hypertension as it may avoid thrombus formation in blood vessels. The percentage of clopidogrel utilization, in a dose range of 75 mg, was 11.7%.

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Simultaneous Estimation of Valdecoxib and Tizanidine by Vierodt's and Q-Analysis UV Spectrophotometric Method

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The simple, accurate and precise Vierodt's and Q-analysis UV Spectrophotometric method has been developed for the simultaneous determination of valdecoxib and tizanidine in combined tablet dosage form. Shimadzu UV-1601 instrument was used and the λmax of valdecoxib and tizanidine was found to be 237 nm and 319 nm, respectively. In Q-analysis, the isoabsorptive point for both the drugs was found at 289.5 nm. The linearity range lies between 5-30 µg/ml for valdecoxib and 0.5-3 µg/ml for tizanidine at their respective wavelengths.

Valdecoxib, a new COX-2 inhibitor, an antiinflammatory drug is chemically, 4,5,(5-methyl-3-phenyl isoxazol-4-yl) benzene sulfonamide[1]. It is yet not official in any pharmacopoeia. Tizanidine is a muscle relaxant, official in Martindale[2]. Chemically, it is 5-chloro-N-(2-imidazolin-2-yl)-2,1,3-benzothiadiazol-4-yl amine hydrochloride. Both the drugs in combination are used in the treatment of painful muscle spasm and disc prolapse. Literature survey reveals that various methods have been developed for the determination of tizanidine alone as well as when in combination with other drugs[3-6] but no method was found to be developed for it's estimation with valdecoxib in combined dosage forms. The authors have hence developed the Vierodt's[7] and Q-analysis method[8] for the estimation of valdecoxib and tizanidine in tablet dosage form.

Methanol (Qualigens Fine Chemicals Ltd. Mumbai) and double distilled water were used for the present study. Tablets were procured from a local pharmacy. Spectral absorbance measurements were made on Shimadzu UV-1601 with 10 mm matched quartz cells.

The stock solutions having 1 mg/ml solutions of both valdecoxib and tizanidine were prepared in methanol. Aliquots of both the stock solutions were diluted further with

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