Morbidity Profile And Drug Distribution Pattern At A Newly Established Tertiary Care Hospital

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Citation

Abstract

Disease variation is a common phenomenon, yet at single place there exists some pattern, knowledge of which is important, for planning new hospitals/health care establishments and/or running one of the already existing. The drug utilization pattern to manage the diseases is also equally important. The study aiming at finding out the pattern of disease & drug distribution was conducted with the above objectives on 2964 patients (males 1019, females 1945) attending general OPD of Sharda Hospital, Greater Noida during July 13 to October 31, 2006. The respective prevalence of systolic hypertension & diastolic hypertension was 9.4% & 12.8% in males and 12.1% & 15.6% in females. Under-nutrition was more common than over-nutrition in both sexes (in males under-nutrition 54.1%, over-nutrition 7.2% and in females under-nutrition 46.2%, over-nutrition 11%). Among males percent proportion of morbidity in the form of upper respiratory infection (URI), low backache (LBA), lower respiratory infection (LRI), acid peptic disease (APD), intestinal parasitosis (IP), bronchial asthma (BA), scabies, malaria and anaemia was 12.6, 9.1, 7.2, 7.0, 7.0, 6.9, 3.7, 2.6, and 0.4% respectively. In females similar figures were 7.6, 18.3, 3.7, 13.6, 4.4, 2.4, 2.2, 1.5 and 3.2 along with the 8.7% additional proportional morbidity in the form of Pelvic Inflammatory Disease (PID). Proportion wise drug distribution amongst males was analgesics & antipyretics (24.3%), antihistaminic (21.0%), antibiotics (14.8%), vitamins & minerals (12.8%), anti-parasites (7.0%) and antacids (5.8%). For females similar figures were 24.9%, 16.7%, 18.8%, 11.6%, 18.8%, 6.7% and 8.9% respectively. The category "other drugs," the proportion use of which was 12.8% in males & 6.6% in females, included deriphyllin, scabizole, alprazolam, antihypertensives & chloroquine.

INTRODUCTION

Mc Mohan has defined epidemiology as the study of distribution & determinants of disease frequency in man. Variations in morbidity patterns is a universal phenomenon. It calls for the need of having knowledge of morbidity pattern in human being at the place where one is working. Such knowledge will help the clinicians to rightly suspect the right disease at right time and this will be helpful in making correct diagnosis. One can be more correct in making diagnosis only when he/ she suspects common problems commonly. Morbidity is many times equated with disease. Diseases are broadly of 2 types- communicable & non- communicable. Once dominated by former, the morbidity pattern in toto is changing in favour of later. This increase in non- communicable diseases is the result of life style changes. The trend toward a higher burden of chronic diseases in developing countries has been termed 'epidemiological transition'. Developed by Omran [1] , the theory conceptualizes three ages of diseases epidemiology; pestilence and famine, receding epidemics, and the current age of degenerative and human made chronic diseases. An

inherent vulnerability of Indians also made them susceptible to suffer more from non-communicable diseases. Eating patterns are changing very rapidly. To maintain the "pseudo–status" the uneducated villagers are consuming alcohol & soft drinks at the cost of not having sufficient food, thus falling the victims of under nutrition. Also people are becoming overweight more than ever was the case. Optimum nutrition is becoming a downgraded phenomenon. Nutritional status is best judged by Body Mass Index (BMI), calculated by dividing weight in kilograms by height in square meters. BMI is easy to measure, highly reliable and correlates with body fat and body fat mass [2] . An abnormal growth of adipose tissue due either to an enlargement of fat cell size or an increase in fat cell number or a combination of both is known as obesity [3] . It is perhaps the most prevalent form of malnutrition and most significant contributors to ill health. Another morbidity becoming commoner is high blood pressure (BP) or hypertension. The epidemiological studies are needed to know the extent of the problem, which is essential if we are to plan and develop health services to deal with the clinical needs. For a hospital planner, knowing

the disease pattern is not sufficient, though it is as important as it is. He needs to know, how these problems are treated? What percentage of patients really need services of specialists? How much can be dealt with by general physicians? What drugs are required and in what amounts? These are the questions to be answered by health workers for hospital planner. The aim of present study was to answer above questions. Baksaas and Lunde have stressed the importance of drug utilization studies in evolving a comprehensive drug policy [4] . The quality of life of the rural population can be improved by enhancing standards of medical treatment at different levels of the primary health care system. Patterson emphasizes that setting standards and assessing the quality of care through performance review should be a part of daily clinical practice [5] . The study of prescribing patterns seeks to monitor, evaluate, and if necessary suggest modifications in prescribing patterns of the practitioners to make health care rational and cost effective. Its importance for the management of a newly coming up hospital speaks itself and hence not be over emphasized.

The objectives of the study

Obtain information on the age and sex profile of the patients being treated at the General OPD of Sharda Hospital.

Study the overall morbidity and the Sex and age wise morbidity pattern.

Obtain information on the drug prescribing patterns.

MATERIALS AND METHODS

The present study was conducted in the Sharda Hospital, attached to Hindustan Institute of Medical Sciences & Research. The hospital is situated in Knowledge Park- III of Greater Noida City, around 2-3 kilometers away from busy main roads in the Institutional Area. Hospital being off the main road, making it popular, that to too quickly, is a challenge. As a part of effort in the same direction an odd six buses (each with seating capacity of 54 persons) were send to nearby villages on daily basis with the aim of getting maximum number of patients within least possible time. Response was good as most of the patients were told the intension of hospital to provide facilities free of cost Sunday remained off day for these buses& their drivers. The community physicians (First two authors) were rightly asked to run screening – cum-treating Out Patient Departments from July, 13, 2007 onwards. Registers were maintained to record details of each patient including name, age, sex,

diagnosis, referral & or treatment .Age and sex differences in the morbidity pattern were analyzed using the X^2 test (P<0.05). Around 20 drugs including tablets of metronidazole, calcium, citrazine, ibugesic, paracetamol, ranitidine, chlorpheneramine maleate, albendazole, iron, deriphyline, co- trimaxazole, ciprofloxacin, capsules of b-complex, doxycyline, ciprofloxacin eye drop, cough syrup, cephalexin syrup, albendazole syrup & scabiol lotion were arranged by hospital to supply free of cost to the patients. As most of patients attending Community Medicine OPD (General OPD) were of poor socio-economic status, all efforts were made to prescribe drugs from the above list only. From 30 [th] July onwards, weight, height & blood pressure of each patient was measured. Weight was recorded on bath room balance up to an accuracy of 0.5 kg & height was measured by marking wall up to an accuracy of 1 cm. Body Mass Index (BMI), was calculated by dividing weight in kilograms by height in square meters. Patient with BMI <18.5 were classified as under nourished, those with 18.5-24.9 as normally nourished and one with BMI>or =25 as overweight. Blood pressure was measured with the help of column type mercury sphygmomanometer having its cuff's bladder width as 12.5 centimeters. Right hand & sitting posture was adopted for blood pressure measurements. After raising the mercury well above 200, lowering of it was done with an optimum speed. Appearance of first sound (phase I) was taken as systolic blood pressure and the disappearance of sound (phase V) was considered as diastolic blood pressure. For each person a minimum of 10 minutes rest before BP measurement was ensured. When done properly this method been shown to correlate well with direct measurements of arterial pressure and with cardiovascular risk. Patients with systolic blood pressure (SBP) of less than 100 mmHg and diastolic blood pressure (DBP) less than 60 mmHg were classified as hypotensives those with SBP of 100-119 mmHg & DBP of 60-79 as normotensives, and one with SBP of 120-139mmHg& DBP of 80-89mmHg as pre hypertensive and if SBP was 140 mmHg or more & or DBP was 90 mmHg or more patients were categorized as hypertensives. The people who were on antihypertensive treatment were also put in hypertensive category. The exercise continued till October 6, 2007. The authenticity of clinical diagnoses made might be considered adequate in light of the fact that first author has passed MD Community Medicine from Mahatma Gandhi Institute of Medical Sciences in the hospital of which all patients' first contact is with Community physicians & referred one are followed up daily in different specialty departments during

lunch hours & discussed in the department of Community Medicine during evening hours. One or more discussants possessed MD in General Medicine too. The data was analyzed manually & with the help of computer. Results were recorded as follows.

RESULTS

A total of 3220 visits by patients (1085 by males & 2135 by females) were made in General OPD of Sharda Hospital during the study period. Amongst males 66 and amongst females 190 visits were 2nd or 3rd . Thus 1019 male patients and 1945 female patients made use of hospital services within the reference period.

Blood pressure was recorded in case of 928 males & 1645 females. In case of both males & females, for 21 subjects age was not recorded / known. Thus final analysis regarding blood pressure was done for 907 males & 1624 female patients. Abnormal blood pressure towards higher side was more common in its diastolic component amongst both sexes (for males12.8%& for females 15.6%) as compared to its systolic component (for males 9.4%& for females 12.1 %). This trend was observed in all age groups till the age of 49 years in both sexes. The rise in diastolic component of blood pressure appeared at much earlier age. Up to the age of 19 years, no case of systolic hypertension was detected. On the contrary 9.8% males and 5.3% females had diastolic hypertension by this age.

Body mass Index (BMI) was also calculated for 907 males & 1264 females. Under nutrition (BMI<18.5)was more common than over nutrition (BMI>25)in both sexes (for males under nutrition was 54.1%& over nutrition 7.2%, for females under nutrition was 46.2% & over nutrition 11% Gender wise, underweight was more common in males & overweight in females. Up to the age of 59 years, in females, the maximum prevalence (21.5%) of overweight was observed at earlier age group (30-39 years) as compared to males in whom the same (14.7%) was in age group of 40-49 years. In the age group of 20-29 years, (the age at which most of persons belonging to higher socio economic status marry), both-under weight & overweight were significantly more (44.6%&16.2% respectively) in females than males (37.5% &7.1% respectively).

A total of 1886 diagnoses in males & 3126 in females were made. These diagnoses were grouped into 10 categories in males &11 categories in females. The most common morbidity in males (12.6% of all) was upper respiratory infection (URI) & in females it was General Debility / Low Back Ache (GD / LBA; 18.3% of all). URI was more common in children (11.7% in males and 12.6% in females) as compared to its low proportion in adults (1.8% in males and 5% in females). "Lower" respiratory infections were more common (12.2% in males & 10.2% in females) among elderly as compared to its lower proportion (4.0% in males, 1.2% in females) among children. Similarly Bronchial Asthma was more common (25.9% in males & 7.1% in females) amongst older age groups as compared to its lower proportion (1.3% in males, 1.2% in females) for children. Amongst children intestinal parasitosis was significantly more (11.7%) in males as compared to 5.8% in females. No case of symptomatic diabetes was detected in males, while in females there were 09 cases (not shown in table). Clinical diagnosis could not be made in 10.0 % males and 8.7% females.

The most commonly prescribed drug group for the treatment of male patients was analgesics & antipyretics(24.3%) followed by antihistamines(21.0%), antibiotics(14.8%), vitamins & minerals (12.8%), other drugs (12.8%), antiparasitics (7%), & antacids (5.8%). For the treatment of females also the most commonly prescribed drug group was analgesics & antipyretics (24.9%) which was followed by vitamins & minerals (18.8%), antihistamines(16.7%), antibiotics(11.6%) , antacids(8.9%) , antiparasites(6.7%) & other drugs(6.6%). The group "other drugs" included deriphyllin, scabizole , alprazolam, antihypertensives & chloroquine. In case of 4.7% males & 5% females no drug could be prescribed.

Of the total 1085 visits by male patients, 197(18.2%) were referral visits to other departments; for females out of 2135 visits, 334 (15.6%) were referral visits for other departments. Gender-wise difference of referrals was not statistically significant. For orthopedics department, total referral amongst females were 44 compared to just 6 amongst males. Maximum referrals 163(30.7%) were for medicine department, followed by105 (19.8%) to ophthalmology department.

Figure 1

TABLE – 1 AGE & SEX WISE DISTRIBUTION OF PATIENT

Age	Male	Female	Total
0-14	177 (49.7) (19.5)	178 (50.1) (11.0)	355
15-19	185 (47.8) (20.4)	202 (52.2) (12.4)	387
20-29	128 (31.3) (14.1)	281 (68.7) 17.3)	409
30-39	123 (25.2) (13.6)	365 (74.8) (22.5)	488
40-49	87 (27.0) (9.6)	235 (73.0) (14.5)	322
50-59	67 (30.3) (7.4)	154 (70.0) (9.5)	221
Above	140 (40.1) (15.4)	209 (60.0) (12.9)	349
Total	907 (35.8)	1624 (64.2)	2531

Figure 2

TABLE – 2 AGE WISE DISTRIBUTION OF DRUGS USED FOR TREATMENT OF PATIENTS AT GENERAL OPD OF SHARDA HOSPITAL

A – Males

Age in Years	Analgesic & Antipyretics	Antihistaminics	Antibiotics	Vitamins & Minerals	Other drugs	Antiparasite	Antacids	Treatment not mentioned	Total
0 – 14	108 (3.5)	90 (25.4)	48 (13.6)	33 (9.3)	37 (7.6)	33 (9.3)	15 (4.2)	05 (1.4)	369 (100.0)
15 – 19	60 (22.2)	57 (21.1)	39 (14.4)	30 (11.1)	27 (7.8)	18 (6.7)	15 (5.6)	25 (11.1)	271 (100.0)
20 – 29	114 (29.9)	54 (14.2)	66 (17.3)	39 (10.2)	46 (9.4)	24 (6.3)	30 (7.9)	18 (4.7)	391 (100.0)
30 – 39	78 (25.5)	66 (21.6)	24 (7.8)	48 (15.7)	24 (5.9)	24 (5.9)	27 (8.8)	15 (4.9)	312 (100.0)
40 – 49	57 (25.7)	36 (16.2)	30 (13.5)	42 (18.9)	24 (8.1)	06 (2.7)	15 (6.8)	18 (8.1)	228 (100.0)
50 – 59	39 (17.6)	69 (30.7)	30 (13.3)	30 (13.3)	64 (21.3)	06 (2.7)	06 (2.7)	06 (2.7)	250 (100.0)
60 & above	54 (15.7)	69 (20.0)	75 (21.7)	48 (13.9)	48 (9.6)	33 (9.6)	12 (5.2)	12 (5.2)	351 (100.0)
Overall	510 (24.3)	441 (21.0)	312 (14.8)	270 (12.8)	270 (12.8)	147 (7.0)	123 (5.8)	99 (4.7)	2172 (100.0)

B – Females

Age in Years	Analgesic & Antipyretics	Vitamins & Minerals	Antihistaminics	Antibiotics	Antacids	Antiparasite	Other drugs	Treatment not mentioned	Total
0 – 14	158 (30.9)	42 (8.0)	123 (23.4)	72 (13.7)	09 (1.7)	39 (7.4)	51 (9.7)	24 (4.6)	518 (100.0)
15 – 19	123 (28.4)	45 (10.1)	84 (18.9)	51 (11.5)	48 (12.8)	36 (8.1)	42 (9.5)	12 (2.7)	441 (100.0)
20 – 29	158 (22.9)	138 (19.5)	114 (16.1)	90 (12.7)	66 (9.3)	51 (7.2)	30 (4.2)	57 (8.1)	704 (100.0)
30 – 39	255 (26.0)	175 (17.0)	147 (14.3)	138 (13.5)	114 (11.1)	93 (9.6)	45 (4.4)	48 (4.7)	1015 (100.0)
40 – 49	149 (22.7)	148 (21.8)	114 (16.9)	72 (10.7)	75 (11.1)	36 (5.3)	48 (7.1)	30 (4.4)	672 (100.0)
50 – 59	105 (25.9)	118 (28.1)	54 (12.9)	33 (7.9)	36 (8.6)	30 (7.2)	24 (5.8)	15 (3.6)	415 (100.0)
60 & above	120 (24.1)	141 (28.3)	81 (16.3)	39 (7.8)	33 (6.6)	12 (2.4)	45 (5.6)	27 (5.4)	498 (100.0)
Overall	1068 (24.9)	807 (18.8)	717 (16.7)	495 (11.6)	381 (8.9)	297 (6.7)	285 (6.6)	213 (5.0)	4263 (100.0)

Figure 3

TABLE – 3 PERCENTAGE DISTRIBUTION OF AGE WISE DIAGNOSIS MADE FOR PATIENTS AT GENERAL OPD OF SHARDA HOSPITAL

A - Male

Age in Years	APD	URI	LRI	Br/Asthma	Intestinal rastrosi	Scabies	Malaria	GD/LBA	Anemia	Others	NM	Total
0 – 14	28 (7.4)	44 (11.7)	15 (4.0)	05 (1.3)	43 (11.7)	23 (6.3)	07 (1.8)	15 (4.0)	02 (0.5)	137 (36.3)	58 (15.2)	377 (100.0)
15 – 19	38 (8.7)	65 (14.4)	17 (3.8)	02 (0.3)	37 (8.7)	22 (4.9)	26 (8.1)	38 (8.7)	02 (0.4)	136 (30.8)	59 (13.3)	444 (100.0)
20 – 29	15 (6.7)	28 (12.6)	15 (6.7)	07 (3.0)	17 (7.4)	03 (1.5)	10 (4.4)	15 (6.7)	0	96 (42.2)	20 (8.9)	226 (100.0)
30 – 39	13 (6.1)	41 (1.8)	22 (7.7)	12 (5.3)	17 (7.7)	03 (1.5)	03 (1.5)	30 (13.7)	0	53 (24.4)	13 (6.1)	207 (100.0)
40 – 49	10 (5.7)	20 (11.4)	20 (11.9)	05 (2.8)	0	02 (1.0)	18 (8.6)	01 (0.6)	63 (35.2)	12 (6.7)	179 (100.0)	
50 – 59	03 (2.4)	13 (9.4)	08 (5.9)	08 (5.9)	05 (3.5)	02 (1.2)	0	23 (16.5)	0	40 (28.2)	10 (7.1)	140 (100.0)
60 & above	25 (8.0)	26 (8.0)	08 (2.7)	17 (5.3)	0	33 (10.6)	03 (1.1)	105 (33.5)	18 (5.9)	313 (100.0)		
Overall	132 (7.0)	237 (12.6)	135 (7.2)	130 (6.9)	132 (7.0)	70 (3.7)	48 (2.6)	172 (9.1)	08 (0.4)	632 (33.5)	190 (10.0)	1886 (100.0)

B-Females

Age in Years	APD	PID	URI	LRI	Br. Asthma	Intestinal Parasitosi	Scabies	Malaria	GD/LBA	Anemia	Others	NM	Total
0 – 14	19 (6.3)	03 (1.2)	37 (12.6)	03 (1.2)	0	17 (5.8)	15 (5.2)	12 (4.0)	36 (12.1)	07 (2.3)	115 (32.1)	31 (19.6)	295 (100.0)
15 – 19	53 (13.8)	29 (7.6)	42 (11.1)	22 (5.8)	03 (0.8)	22 (5.8)	08 (2.2)	05 (1.3)	61 (16.0)	07 (1.7)	93 (24.4)	36 (9.3)	381 (100.0)
20 – 29	54 (10.7)	71 (14.4)	43 (8.4)	02 (0.3)	05 (1.0)	31 (6.0)	10 (2.0)	10 (2.0)	59 (11.7)	18 (3.7)	160 (31.4)	44 (8.7)	507 (100.0)
30 – 39	97 (16.1)	115 (16.1)	36 (5.0)	24 (3.4)	10 (1.4)	20 (2.8)	13 (1.8)	13 (1.8)	117 (16.4)	20 (2.8)	188 (26.4)	60 (8.4)	713 (100.0)
40 – 49	66 (13.6)	25 (5.2)	20 (4.2)	12 (2.5)	10 (2.1)	22 (4.6)	05 (1.1)	03 (0.7)	112 (23.2)	14 (2.8)	165 (34.0)	29 (6.0)	483 (100.0)
50 – 59	58 (18.4)	08 (2.7)	24 (7.6)	08 (2.7)	14 (4.3)	03 (1.1)	07 (2.2)	0	59 (18.9)	10 (3.2)	95 (30.3)	27 (8.6)	313 (100.0)
60 & above	54 (14.2)	05 (1.2)	24 (6.2)	39 (10.2)	28 (7.1)	14 (3.6)	08 (2.2)	03 (0.9)	90 (25.8)	17 (4.4)	112 (29.3)	31 (8.0)	434 (100.0)
Overall	401 (13.6)	256 (8.7)	226 (7.6)	110 (3.7)	70 (2.4)	129 (4.4)	66 2.2	46 (1.5)	534 (18.3)	93 (3.2)	928 (31.3)	258 (8.7)	3126 (100.0)

DISCUSSION

During the study period of 12 weeks (13/07/07 to 06/10/07), a total of 2964 patients were seen by two doctors (approximately 20/day/doctor). Doctor patient ratio might be 1:2 or less in ICU, CCU, Emergency. Significantly more females than males made use of hospital services.

The over all 16.3% prevalence of hypertension in our study is in agreement with 16.5% reported by a study [6] conducted in urban slums of Faridabad District of Haryana State. Hypertension prevalence was significantly more in females as compared to males. Percentage prevalence of diastolic component of blood pressure was higher in both sexes as compared to its systolic component. In a study conducted on Omani population [1], diastolic hypertension accounted for 19.95% of hypertension and systolic hypertension for only 7.06%. In a Chennai based study the prevalence of hypertension in the age group of 35-59 years was 24.0%. In our study the similar figure turned out to be around 22%. Systolic hypertension was more common amongst elderly in our study. Similar finding have been observed by a Chennai based study [7].

Observing significantly much more prevalence of under nutrition & over nutrition in females as compared to males in the age group of 20-29 years is a very significant finding. Girls are inherently at more risk for overweight. However, they make all efforts to make them suitable for boys to whom they are likely to get marry. In doing so most of them become more slim (i.e. undernourished) than needed. A

study conducted at chandigarh [8] demonstrated that under nutrition in the age group of 15-24 years was much higher (39.3%) in females as compared to its 15.9% prevalence among males. Sudden rise in percent prevalence of over weight appeared 10 years earlier compared to blood pressure in both sexes indicating former to be the cause of later.

Finding of maximum morbidity belonging to respiratory diseases in both sexes (26.7% in males & 13.7% in females) is a common observation. The same observation of Acute Respiratory Infection (ARI) being the most common morbidity has been reported by many authors including one from Chandigrah [9]. Bronchial Asthma was significantly more (6.9%) among males as compared to 2.4% prevalence in females. High prevalence of smoking amongst males might be responsible for this. Male predominance of bronchial asthma has also been reported by Jindal et al [10]. Intestinal parasitosis was also significantly more (7.0%) among males as compared to 4.4% in females. In villages at any given point of time more males stay and defecate in fields (and hence likely to pick up more worm infestation) compared to females who usually stay and defecate at home. This fact might explain the above finding. Respectively higher prevalence of intestinal amoebiosis, hookworm infestation and E. coli among males has been observed by others [11,12,13]. World Health Organization (WHO) has set a target of delivering regular antihelminthic treatment to at least 75% of school age children in endemic countries by the year 2010. The percent prevalence of 2.8% malaria is lower than 5.9% observed in a Nepal based study [14]. Non-availability of chloroquine as free drug known to public around hospital might have resulted in less number of persons turning to this hospital. The same authors also reported that anaemia proportion varied from 1.4% at health post to 5% at PHC, through 4.0% at sub-health post, as compared to 0.4% proportion for males & 3.2% proportion for females by our study results. The low proportion is due to the fact that only clinically evident anaemia (where haemoglobin level is usually 9gm or lower) was recorded. The 3.7% scabies proportion in males & 2.2% in females is comparable to 2.8% overall proportion of it reported by others [15]. Higher percent prevalence of GD/LBA amongst females might be due to the presence of an additional 8.7% morbidities in the form of pelvic inflammatory disease (PID). The maximum load of GD/LBA explains easily the finding of maximum prescription of analgesics & antipyretics amongst females. The same observation of paracetamol being the most commonly prescribed drug has been made in a Nepal based study. The proportion of 24.3%

made up of analgesics and antipyretics in our study is comparable to its 25.9% proportion at health post & 25.4% proportion at sub-health post reported by above mentioned study. We used ibuprofen, diclofenac and paracetamol interchangeably, as against above authors who used only paracetamol.. Another study recorded the use of paracetamol as most common in males & second most common in females [16]. Authors of above study also agree with present authors regarding female predominance amongst APD patients and vitamins & minerals prescriptions In our study for males also the most commonly prescribed drugs were analgesics & antipyretics though LBA was not the most common diagnosis made. We have observed that Intestinal Parasitosis was much more common in males and for abdominal pain antipyretic (Paracetamol) was used since antispasmodics were not available and patients demanded drugs free of cost: Thus amongst males also the most commonly prescribed drugs turned out to be analgesics & antipyretics. Significantly higher percentage (11.1 in males,10.7 in females) of undiagnosed patients compared to lower percentage (4.7 in males,5 in females) of untreated cases means that around 6.4% males & 5.7 females were treated without making any diagnosis. Percentage of this so called symptomatic treatment is very high in many hospitals and that is a matter of grave concern.

As compared to 18.2% referrals made in our study, a Kashmir (India) based study reported about 30% referrals of patients from Primary Health Centre to hospitals for higher care [17]. Referrals may exaggerate symptoms. In a Karnataka based study it was the case for 8.6% of referred patients [18].

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