



A COMMUNITY-BASED STUDY FOR EVALUATION OF MORBIDITY AMONG CARDIAC DRUG CONSUMERS

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ABSTRACT

The aim of study was to evaluate morbidity associated with cardiac diseases and pharmaco-economic characteristics for drug usage among residents of Uttarsanda village of Nadiad. Community based cross sectional study was done for evaluating morbidity and expenses among cardiac drug consumers. Our study revealed that among 117 cardiac patients, 63.5% of patients suffered from hypertension, 32.7 % of patients were suffered from diabetes, 8% were suffered from cardiovascular diseases (CVDs), 4.2% from thyroid and 3.4 % from other diseases. Out of 146 families of Uttarsanda village, approximately 61% of families spend their total income for medications and healthcare and 37% families were found not to spend income on healthcare even though diseases were present. More prevalent diseases identified for spending monthly family income were hypertension, congestive heart failure, diabetes mellitus, and hyperlipidaemia. There is a need for cost effective treatment approaches in rural area of India.

Keywords: Morbidity, Cardiovascular diseases (CVDs), Cardiac drug consumers

INTRODUCTION

Cardiovascular disease (CVDs) accounts for a high proportion of morbidity and mortality in India and its prevalence is increasing throughout the world¹. It has been well reported that diabetes mellitus, hypertension and thyroid disorders are co-morbid diseases with CVDs^{2,3}. Various anti-diabetes, anti-hypertensive and thyroid- anti-thyroid drugs are recommended for the management of patients with cardiovascular disease or their risk factors^{4,5}. Studies based on hospital registries or epidemiological surveys of patients reported moderate to high rate of cardiovascular drug usage^{6,7}. However, rate of drug usage for individuals with coronary heart disease or stroke in the community remained unknown in rural area of India⁸. Further most available research reports are from developed countries or from metacentric clinical studies and whether their findings reflect the actual situation in communities is debatable. Because about 75% of the burden of cardiovascular disease falls on low-income and middle-income countries (developing countries), relevant data for secondary prevention practices are needed in such countries⁹. Even many individuals live in rural areas where access to medical care is difficult. Therefore, we conducted cross-sectional study to assess rate of drug usage in cardiovascular diseases and related co-morbid conditions from rural communities of Uttarsanda village, Nadiad, Kheda district of Gujarat.

METHODOLOGY

Study design: A cross-sectional community-based study for evaluation of morbidity and expenses among cardiac drug consumers.

Study Setting: Study population was comprised of permanent resident of Uttarsanda Village. Uttarsanda is located in Nadiad of Kheda district, Gujarat. It is a village with total 2433 families. The village has population of 10616 of which 5399 are males while 5217 are females as per Population Census of 2011. Population of children with age 0-6 is estimated 957 (9.01 % of total). Average sex ratio is 966 which are more than Gujarat state average of 919. In 2011, literacy rate of Uttarsanda village was 90.32 % while in Gujarat it was 78.03 %. In Uttarsanda male literacy was estimated at 95.07 % while female literacy rate was 85.42 %. Village is administrated by Sarpanch (Head of Village) who is elected representative of village. Study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP) and as per Declaration of Helsinki guidelines. Study was approved by Ethics Committee of DDMM Heart Institute, Nadiad.

Inclusion and exclusion criteria:

1. Inclusion criteria –
 - A) Permanent resident of Uttarsanda Village.
 - B) Should be able to give consent
2. Exclusion criteria-
 - A) Unable or refuses to give consent for the study

Sample size: Total sample size estimated was 146 families and out of which 117 patients were with cardiac drug usage.

Data collecting tool: A questionnaire was developed. It consisted of socio-demographic information about household, information on drug prescription, drug usage at community level and family income.

Data collection: Data collection was started in December 2016 and completed in January 2017. Recruitment was done in chronological order of household location. Starting point was picked randomly. Teams visited households in opposite directions. Any house found to be locked was skipped and accounted. This process was carried out until sample the required sample size was achieved. After getting consent from the family member of the respective household, questionnaire was administered, and responses were noted.

Data analysis: Collected data were entered in Microsoft excel and analyzed using Epi Info7. Categorical data were presented as percentage with 95% confidence Interval.

RESULTS & DISCUSSION

According to the WHO report, 23.7 million patients were died due to CVDs in 2010 and the same scenario was observed between 2010-2016. Multiple co-morbid conditions associated with CVDs are hypertension, raised blood glucose level, congestive heart failure and hyperlipidaemia¹⁰. Excessive

smoking and malnutrition are other factors that increased morbidity among cardiac drug consumers. For CVDs burden in India, it also reported by WHO that India would lose 237 billion \$ due to loss of productivity and expenditure on healthcare over the period of last 10 years^{11,12}. At present no such data are available for CVDs burden from the rural parts of India.

Therefore, we conducted an epidemiological study on morbidity evaluation and drug utilization among CVDs drug consumers in rural area of Nadiad. We collected data of 117 patients. Our results showed high frequency of cardiac events in female (63 %) compare to male (37 %). Out of 117 patients, 9 patients belong to the age groups (less than 40 years), 48 belong to the age groups (41 to 59 years) and 60 patients belong to the age groups (greater than 60 years).

In our study, out of 117 cardiac patients, 63.5% were suffering from hypertension, 32.7% of populations were suffering from diabetes mellitus, and 8.4% were suffering from hyperlipidaemia. 4.2% were suffering from thyroid and 3.4% were suffering from other diseases (Table 1).

Table 1: Morbidity among cardiac drug consumers (117)

Diseases	Frequency	Cumulative Percent
Hypertension	70	63.5% (54.8 – 70.6%)
Diabetes	36	32.7% (24.1 – 41.7%)
CVDs	11	8.4% (4.3 - 15%)
Thyroid	8	4.2% (1.8 – 9.6%)
Other	5	3.4% (1.3 – 8.4%)

It is well reported that diabetes mellitus, hypertension and stroke as co-morbid conditions associated with CVDs^{13, 14}. Among 117 patients, 93% patients had their prescribed medicines by physicians while remained 4.8 % patients didn't have their prescribed medicines (95% CI - 3.5% - 12.9%). The reason asked to these patients and it was found that they consumed alternative medicines (ayurvedic medicines) and give up prescribed medicines. Thus, it may suggest poor patient compliance among 4.8% and may increase risk for CVDs mortality^{15, 16}.

Further we evaluated monthly expenses on treatment among 146 families including 117 cardiac drug consumers. We found that 35

families households income per month were less than 5000 rupees, 33 families with 5001 to 10000 rupees, 37 families with 10001 to 20000 rupees and 41 families were more than 20000 rupees income (Table 2). The result showed that out of 146 families 61% of families spend their money on healthcare and medicines. Remaining of 39% of families was not spending money on healthcare though they were suffered from CVDs comorbid conditions. The reason may be the less monthly income. Therefore, in India, cost effective treatment approaches are needed for such low-income patients that prevents mortality among cardiac drug consumers.

Table 2: Monthly family income of households

Income (RS)	Frequency	Percent	Cumulative Percent
Less than 5000	35	24.0	24.0
5001 – 10000	33	22.6	46.6
10001 – 20000	37	25.3	71.9
More than 20000	41	28.1	100.0
Total	146	100.0	

CONCLUSION

More prevalent CVDs comorbid conditions found in our study were hypertension, diabetes mellitus, thyroid disease and hyperlipidaemia. These all diseases were associated with spending majority of monthly income. Thus, more cost-effective treatment approaches would be needed for prevention of morbidity among cardiac drug consumers with low monthly income. However, detail epidemiological study across different states of India may be conducted to establish new treatment policies by Government of India for the betterment of health of rural population.

REFERENCES

1. Yusuf S, Rangarajan S, Teo K, Islam S, Li W, Liu L, et al. Cardiovascular risk and events in 17 low-middle and high-income countries. *N Engl J Med* 2014; 371(9): 818-27.
2. Brownson RC, Smith CA, Pratt M, Mack NE, Jackson-Thompson J, Dean CG, et al. Preventing cardiovascular disease through community-based risk reduction: the Bootheel Heart Health Project. *Am J Public Health* 1996; 86(2):206-13.
3. Gordon K, Smith F, Dhillon S. Effective chronic disease management: patients' perspectives on medication-related problems. *Patient Educ Couns* 2007 ;65(3):407-15.
4. Roger VL, Weston SA, Redfield MM, Hellermann-Homan JP, Killian J, Yawn BP, et al. Trends in heart failure incidence

- and survival in a community-based population. *J Am Med Asso* 2004; 292(3):344-50.
5. Schneider EC, Epstein AM. Use of public performance reports a survey of patients undergoing cardiac surgery. *J Am Med Asso* 1998;279(20):1638-42.
 6. Eisenberg JM. Clinical economics: a guide to the economic analysis of clinical practices. *J Am Med Asso* 1989; 262(20):2879-86.
 7. Kozma CM, Reeder CE, Schulz RM. Economic, clinical, and humanistic outcomes: a planning model for pharmacoeconomic research. *Clin Ther* 1993; 15(6):1121-32.
 8. Bootman JL, Larson LN, McGhan WF, Townsend RJ, McGhan WF, Bootman JL, et al. Pharmacoeconomic research and clinical trials: concepts and issues. *Ann Pharmacother* 1989; 23(9):693-7.
 9. Sanchez LA. Pharmacoeconomic principles and methods: including pharmacoeconomics into hospital pharmacy practice. *Hosp Pharm* 1994; 29(11):1035-6.
 10. Anchala R, Kannuri NK, Pant H, Khan H, Franco OH, Di Angelantonio E, et al. Hypertension in India: a systematic review and meta-analysis of prevalence, awareness, and control of hypertension. *J Hypertens* 2014; 32(6):1170.
 11. Jankovic SM, Dejanovic SM. Drug utilization trends in Clinical Hospital Center "Kragujevac" from 1997 to 1999. *Ind J Pharmacol* 2001; 33(1):29-36.
 12. Dukes MN. Drug utilization studies: their transferability between industrialized and developing countries. In: Dukes MN (eds). *Drug utilization studies: methods and uses. Series 45. World Health Organization Regional Publication: Copenhagen; 1993: 193-209.*
 13. Bergman U. The history of the drug utilization research group in Europe. *Pharmacoepidemiol Drug Saf* 2006; 15(2):95-8.
 14. Truter I. A review of drug utilization studies and methodologies. *J Pharm Sci* 2008; 1(2):91-103.
 15. Bergman U, Popa C, Tomson Y, Wettermark B, Einarson TR, Aberg H, et al. Drug utilization 90%—a simple method for assessing the quality of drug prescribing. *Euro J Clin Pharmacol* 1998; 54(2):113-8.
 16. Prabhakaran D, Jeemon P, Roy A. Cardiovascular diseases in India: current epidemiology and future directions. *Circul* 2016; 133(16):1605-20.

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