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IMPACT OF CLINICAL PHARMACIST ON "PATIENTS CARE" IN ACUTE CORONARY SYNDROME

Kota Lakshmi Narasimha rao[1*], G Nikhitha Reddy[1], N Vinny[1], Soumadip Das[2], C K Dhanapal[2], S Selvamuthukumaran[3]

[1] Department of Pharmacy Practice, R.M Medical College& Hospital, Annamalai University
[2]Department of Pharmacy Practice, Annamalai University
[3] R.M Medical College& Hospital, Annamalai University, Tamil Nadu, India

***Corresponding author e-mail:** simha933@gmail.com

ABSTRACT

This is a single blinded interventional research in which patient were regularly followed-up. First Intervention includes collecting data to analyze cost of therapy which includes cost minimization by prescribing cheap brands/generics (pharmacoeconomics), quality of life of the patients was measured by WHO QOL BREF questionnaire as outcome of Intervention and second is early ADR detection and prevention and life style modification. The overall mean score of WHO QOL BREF questionnaire of all recruited patients at the time of admission was 30.39 which comparatively increased to 58.45 at the time of discharge. The total cumulative therapy cost was accounted Rs.451, 320.98 for all 65 patients included in the study. The average no. of drugs prescribed per prescription were approximately 7 drugs and 6 drugs in generic name and as per WHO essential list respectively. Patient counseling and life style modifications in addition to treatment showed significant evidence in improvement of patients' therapeutic outcomes, improved quality of life.

KEY WORDS: Pharmacoeconomics, Pharmacoepidemiology, Quality of life, Therapeutic outcome, Therapy Cost.

INTRODUCTION

The prevalence of cardiovascular disorders is increasing Worldwide. Cardiovascular diseases contribute for a substantial proportion of the ill health among the people globally and the morbidity, mortality remains unacceptably high in spite of various efforts. Healthcare financing also remains a key issue. The government assures healthcare to all its citizens, 80% of all out-patient and 60% of all in-patient care is handled by the private sector which accounts for 68% of all hospitals in the country.

"CVDs are expected to be the fastest growing chronic illnesses between 2005 and 2015, growing at 9.2% annually, and accounting for the second largest number of NCD patients after mental illnesses. A more worrying fact is that the incidences of CVDs have gone up significantly for people between the ages 25 and 69 to 24.8%, which means we are losing more productive people to these diseases between 2005 and 2015, India is projected to cumulatively lose USD $236.6 billion because of heart disease, strokes, shaving 1% off the GDP.[8] In 2000, in the age group of 35 to 64, India lost 9.2 million years of productive life (PYLLs), almost six times the figure for USA."[7]

The research was conducted to implement and analyze Cost of therapy ,both health care policy and burden of the disease (pharmacoepidemiological studies) and pharmacoeconomic studies to analyze the cost for a particular disease spent by a patient and its impact in terms of patients' therapeutic outcomes.[4]

METHODS

The study was conducted in Coronary care unit (CCU) and Medicine Wards of Rajah Muttaih Medical College and Hospital (RMMCH), 1400

bedded Multi- Speciality Tertiary Care Teaching Hospital, Annamalai University.

Patients who came to RMMCH affected with Acute Coronary Syndrome, admitted in inpatient medicine wards and CCU of either sex and, those who are not having any other co-morbidities and willing to co-operate were being recruited in the study. Patients who were above 18 years of age, newly diagnosed with ACS, already being tre

ated for ACS and who are willing to co-operate were included in the study. These patients (or care giver) were explained about the study and their consent was obtained along with signature (or of care givers) and recorded (Tamil and English translations were provided).

Patients with other co-morbidities with cardiovascular disorders, not willing to cooperate, vulnerable group (pregnant women, mentally retarded etc.) along with patients coming for general check up (Out patients) were excluded from the study. The "patient care plan" was designed with an objective to decrease economic burden and improving patient health outcomes concomitantly.

This study was a single blinded interventional research. This study was conducted over a group of 70 patients to evaluate the Pharmacoeconomics and pharmacoepidemiology of patients affected with Acute Coronary Syndrome, prescribing pattern of drugs, QOL domains, and statistical tools were applied. Cost of therapy forms were designed with an objective to find economic burden of the ACS on each patient and is calculated in terms of direct cost (medical cost, admission cost etc) and indirect cost (productivity cost like number of days lost and income lost during the time of therapy).The WHOQOL Questionnaire was used to assess patient's Quality Of Life.

Patient were regularly followed-up once at starting, and while they were about to discharge. First Intervention includes collecting data to analyze cost of therapy, quality of life of the patients which was measured by WHO QOL BREF questionnaire was outcome of Intervention and second Intervention was assessment of the possible Adverse Drug Reactions (ADR), patient counseling about life style modification like low salt intake and DASH diet. The interventions were designed by researchers along with the consultant physician. Disagreements over study design were resolved by discussion between the authors if required.

The prescriptions were assessed for the possible Adverse Drug Reactions (ADR) associated with treatment and the drugs prescribed, using Naranjo Scale of Causality Assessment. Patients were counseled about their disease, lifestyle modifications by providing Pictorial Patient Information Leaflet (PPIL).

Cost of therapy includes Data collection forms were formulated which procured information at baseline and each follow-up regarding patients Direct cost, Indirect cost, total treatment cost, no of days spent in hospital and average cost per day. Other information like patient's lifestyle, socio-economic status was also recorded.

WHO- QOL BREF version was used to assess the health related QOL of patients being recruited in our study. The Questionnaire contains 26 item of BREF covering four domains for assessing quality of life (Appendix-3) which are namely the Physical, Psychological, Social and Environmental domains. Participants expressed how much they have experienced in the preceding two weeks on 5-point likert scale ranging from 1(not at all) to 5(completely)which usually takes about 10 to 15 minutes in administration. The scores of each domain range from 5-25 and higher scores reflect the better quality of life of individual patients.

RESULTS

Base Line Patients Demographics: The base line demographics have been shown in different parameters. (Table 1) The mean age of sampled patients is 55 years and age of the patients ranged between 36 to 50 years. Most patients (n=34) were hospitalized for 5 to 7 days and low number of patients (n=7) depicted hospitalization days ranging between 11 to 13 days (Table 1). The mean of 13 drugs were prescribed per prescription of which a mean of 7 drugs were prescribed in generic name and 6 drugs were prescribed as per WHO essential drug list (Table 2).

Therapeutic outcome: The overall mean score of WHO QOL BREF questionnaire of sampled patients was 30.39 at the time of admission. After the first baseline follow up the mean WHO QOL score was recorded as 45.54. At the final follow up the WHO QOL score was recorded as 58.45 which was remarkably higher at the time of discharge (Table 3). The overall quality of life was improved at the time of discharge by providing them patient care plan which includes patient counseling and life style modifications.

Cost of therapy: The overall cumulative therapy cost for 65 patients was accounted as Rs. 451,320.98 of which 35.61% of total cost was paid by 16 patients (7000-9000), 33.22% of total cost was spent by 24 patients (5000-7000), 17.92% was spent by 7 patients (>9000), 9.02% and 4.23% of total cost was spent by

10 and 8 patients respectively (3000-5000 and 1000-3000) to improve their quality of life (Table 4).
The average cost per illness spent by patient was Rs. 6943.40 to improve his/her quality of life (nearly 28.06) from the time of admission (baseline score) to the time of discharge (outcome score).

DISCUSSIONS

As prevalence of cardiovascular disorders is increasing Worldwide, this study was targeted to assess the Pharmacoeconomics and pharmacoepidemiology of cardiovascular disorders in accordance to the improvement of their diseases symptoms and quality of life. Among these 65 patients, male's number of patients (66. 2%) outnumbered females (33.8%). The study showed that an acute episode of ACS occurred at age group of 36-50 yrs, which required hospitalization of about 7(6.39) days.
The total cost spent by total number of patients (n=65) in the study was estimated/calculated to be Rs. 451,320.98 with most patients (24; 36.9%) paying in cost range of (RS. 5000 to 7000). On an average each patient spent Rs. 6943.40. Of which the total direct cost spent by these patients was Rs. 399,321 and total indirect cost was Rs. 52,000. The average direct cost per patient for 7days was Rs.6143.40 and average indirect cost per patient for 7 days was Rs.800.
The number of patients i.e., 7 patients (10.8%) paid therapy cost more than 9000 and 8 patients (12.3%) paid in between 1000 to 3000 as cost of therapy.The socioeconomic data showed that a significant number of patients (i.e., 38; 58.5%) belonging to below poverty line (BPL) with the monthly income of less than Rs.1000 and 27 patients (41.5%) were above this poverty line. Out of 38 patients below the poverty line all of them accepted that the health care cost they were paying was a major burden on them.
Assessment of quality of life score was considered as one of the subjective method of evaluating outcome of treatment. The quality of life instrument utilized in this study was WHO QOL BREF, a generic questionnaire that has been extensively evaluated in people with medical illness. This questionnaire measures the quality of life mainly in four domains, these domains ate physical health, psychological, social relationship and environmental domain.
Physical health includes the association of daily activities, work capacity, energy/fatigue, mobility, pain, sleep and dependence on medicines and medical aids. This domain was affected predominantly in patients with symptomatic changes since symptoms were present in all cardiovascular patients with symptomatic changes the physical health domain of QOL was most badly affected. The psychological domain comprises the assessment of the patient's mental health that includes bodily images, negative feelings, positive feelings, self-esteem, personal beliefs, thinking, learning, memory and concentration. Social relationship comprises the assessment of social support, personal relationships with family and friends and sexual activities. Environmental domain includes the assessment of satisfaction of the patients with schooling, financial status, medical facilities, home environment and transportation.
The strategic intervention of patient counseling, life style modifications and patient leaflets aided patients to understand the diseases better and to overcome stigma and burden of the disease. This Patients Care can benefit hugely patients if implemented in a larger scale.

CONCLUSION

This research highlights the pharmacoeconomics importance along with pharmacoepidemiology studies to treat ACS. Patients Care Plan (patient counseling and life style modification) in addition to the treatment showed significant evidence in improvement of patients' therapeutic outcomes and reducing the economic burden on the patients. Thus, in our study these contributing factors provided to the patients can reduce the productivity of the patients. The insufficiency of work may lead to decrease in daily income which directly affects quality of life of individual patients.

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TABLE 1: PATIENT DEMOGRAPHICS

Patient Demographics		No Of Patients
Sex		43 MALE 22 FEMALE
Mean Age		54.7 Yrs
Age Range		32-84 Yrs
Hospitalization days		
Days	2-4	14
	5-7	34
	8-10	10
	11-13	7
	Mean	6.3

TABLE 2: PRESCRIPTION PATTERN OF DRUGS

Drugs Prescribed		No. Of Prescriptions
As Per Who Essential Drug List		
Drugs	1-2	3
	3-4	11
	5-6	30
	>6	21
Mean(Drugs Per Prescription)		5.9 (6)
In Generic Name		
Drugs	0-3	10
	4-7	32
	8-11	20
	>11	3
Mean(Drugs Per Prescription)		6.4 (6)
Number Of Drugs Prescribed		
Drugs	4-8	5
	9-12	34
	13-16	19
	>16	7
MEAN(drugs per prescription)		12.4

TABLE 3: BASELINE AND OUTCOME SCORES OF PATIENTS' QUALITY OF LIFE

Who Qol Domains (Scores 0-100)	At The Time Of Admission (Baseline Score)	At The Time Of Discharge (Outcome Score)
Physical health (D1)	25.73	74.35
Psychological (D2)	26.33	74.49
Social relationships (D3)	33.49	41.83
Environment (D4)	36.01	50.98
Mean score (overall)	30.39	60.43
Grade	**Poor**	**Good**

**Grade very poor (0-20); poor (21-40); neither poor nor Good (41-60); Good (61-80); very good (81-100) values are represented as mean*

TABLE 4: COST OF THERAPY

Cost Of Therapy (In Rupees)	No. Of Patients	Total Amount (In Rupees)
1000-3000	8	19,129.14
3000-5000	10	40,710.65
5000-7000	24	1,49,860.04

7000-9000	16	1,60,751.32
>9000	7	80,869.83
Mean(Therapy Cost Per Patient)	65	6,943.40
Total Direct Cost	65	3,99,320.98
Total Indirect Cost	65	52,000
Total Cost Of Therapy	65	4,51,320.98

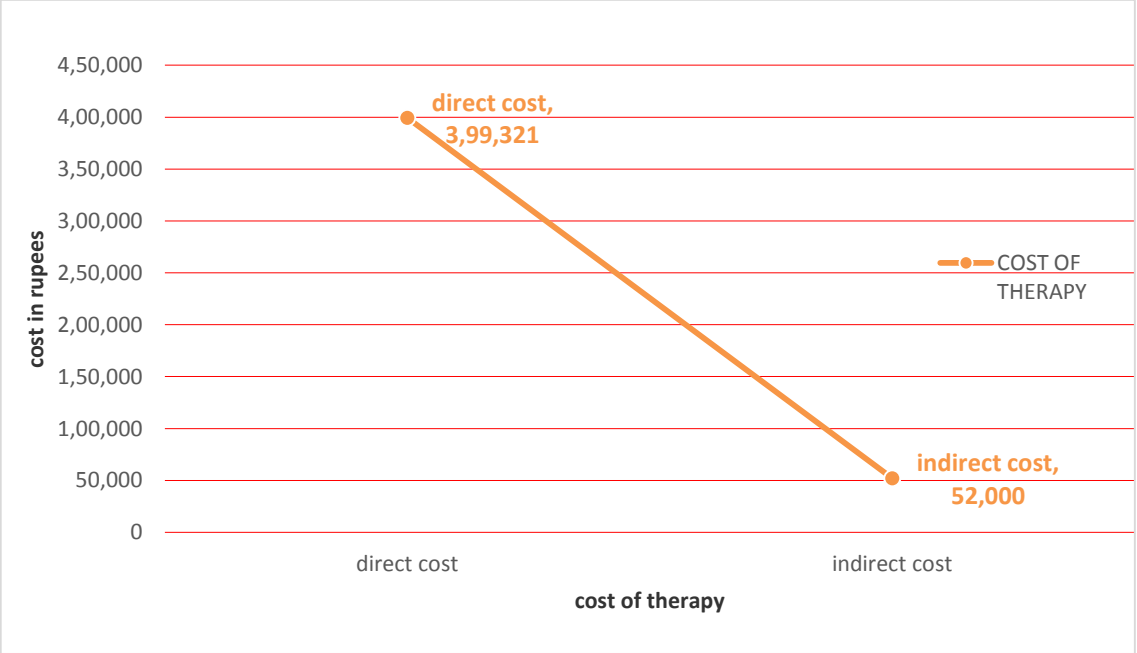

Figure 1: ***cost of therapy of Patients***

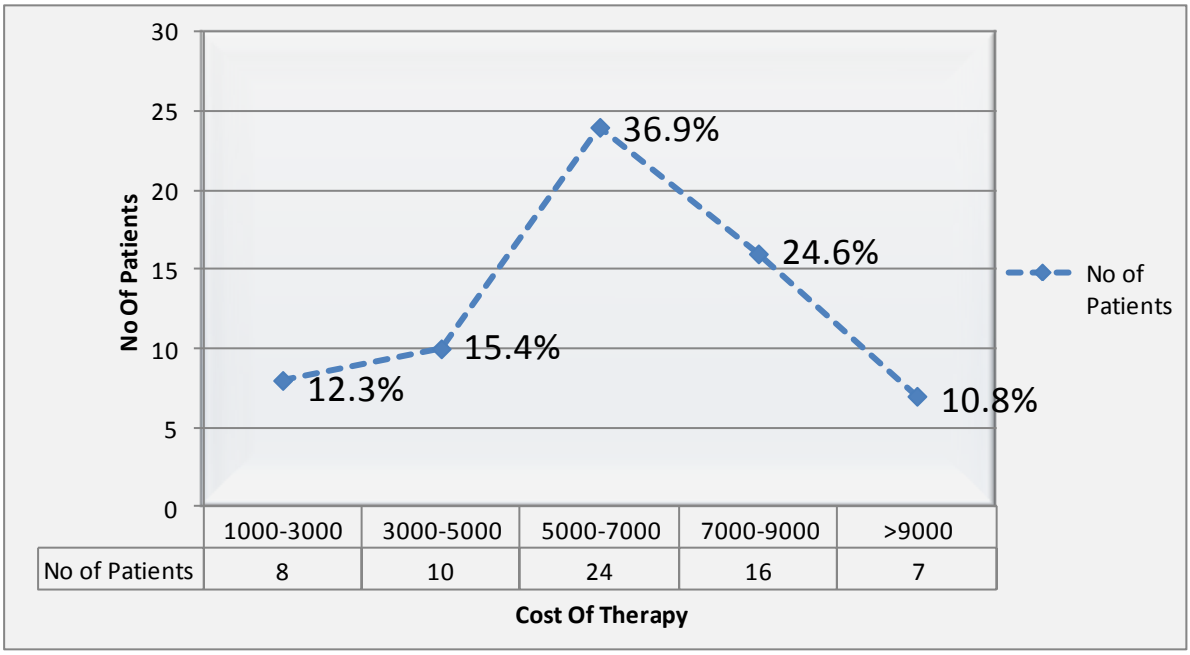

Figure 2: ***Patient's Distribution based on Therapy Cost***

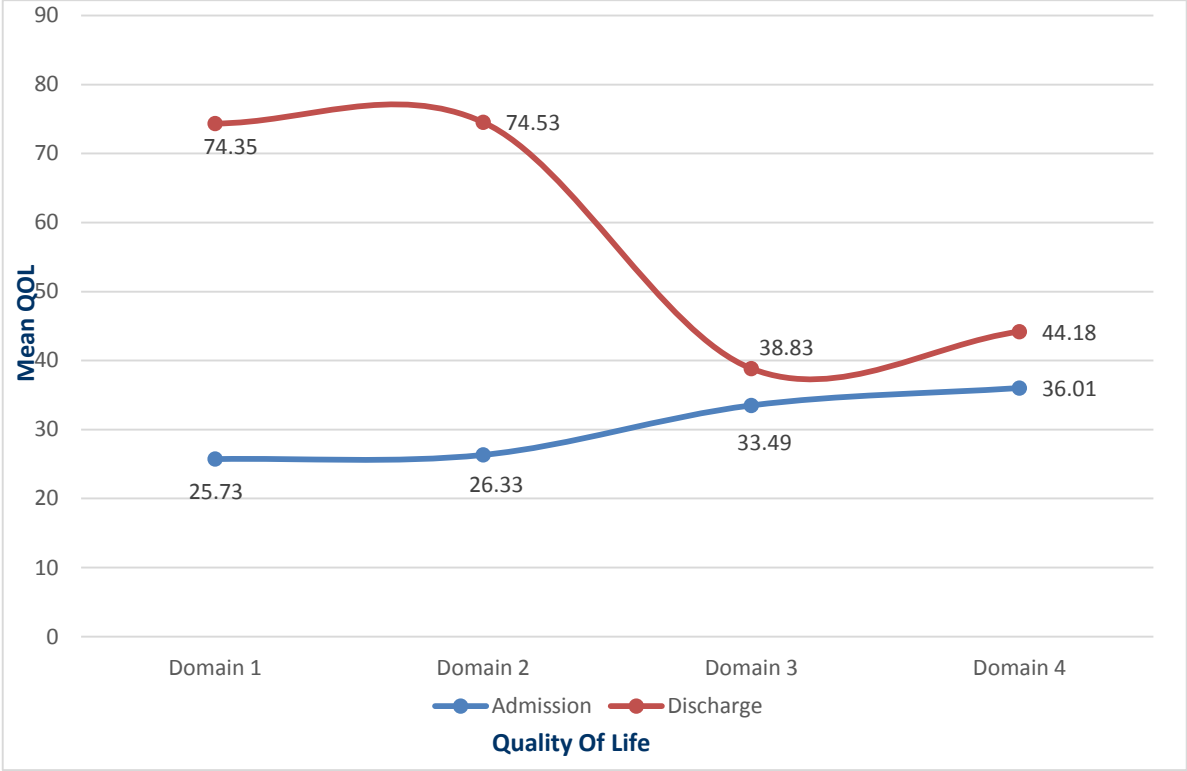

Figure 3: ***Quality of life of Patients during Admission & Discharge***

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