



Original Article

## Drug Utilization and Prescribing Pattern in Patients with CHF In a Tertiary Care Teaching Hospital

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### ABSTRACT

**Introduction:** Congestive heart failure (CHF) represents a major public health concern globally, with India experiencing disproportionately high mortality and morbidity rates. The burden is intensified by socio-economic challenges, healthcare disparities, and late-stage disease presentation. Despite the rising prevalence of CHF in India, data on drug utilization and prescribing patterns in this population remain limited, particularly within tertiary care settings. Understanding these patterns is crucial for optimizing management and improving patient outcomes.

**Objectives:** The present study aimed to analyze and evaluate drug utilization and prescribing patterns among patients diagnosed with CHF admitted to a tertiary care teaching hospital.

**Methodology:** A retrospective observational study was conducted at Raichur Institute of Medical Sciences by reviewing inpatient case records of CHF patients admitted between January and May 2024. Data on demographics, drug prescriptions, and clinical information were collected using a structured extraction form. Prescription rationality was assessed using World Health Organization (WHO) core prescribing indicators. Descriptive statistics summarized demographic and prescribing data. Ethical approval was obtained prior to data collection.

**Results:** The study included 56 patient encounters, predominantly middle-aged (50% aged 41-60 years) with a female majority (57%). Comorbidities were present in 71% of patients, including diabetes and hypertension. Polypharmacy was prevalent, with an average of 11 drugs prescribed per encounter (range 3-17). The most frequently prescribed drugs were Ceftriaxone, Ranitidine, Furosemide, Atorvastatin, Aspirin, Normal Saline, Spironolactone, and Clopidogrel. Antibiotics were prescribed in 79% of encounters, and injections in 98%. WHO prescribing indicators showed 55% generic prescribing and 87% adherence to the essential drug list.

**Conclusion:** The present study highlights significant polypharmacy, high antibiotic use, and extensive injection reliance among CHF patients in a tertiary care setting. These findings underscore the complexity of CHF management and the need for rational prescribing strategies to enhance therapeutic outcomes and patient safety.

**Keywords:** CHF, Drug Utilization Study, Drug Utilization Pattern, WHO Core Prescribing Indicators.

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### INTRODUCTION

Congestive heart failure (CHF) poses a significant public health challenge globally, with particularly high mortality and morbidity rates observed in India compared to Western populations. Epidemiological data reveal that while CHF contributes substantially to mortality worldwide, its impact in India is exacerbated by a combination of socio-economic

factors, healthcare disparities, and late-stage disease presentation. Studies assessing health-related quality of life in heart failure patients across multiple regions, including South Asia, indicate that patients in these regions experience lower quality of life scores and comparatively worse outcomes than those in Western countries [1]. Furthermore, ethnic disparities in CHF prognosis emphasize that South Asians, a substantial demographic in India, exhibit higher long-term mortality and hospital readmission rates after initial CHF hospitalization compared to Western populations [2]. Contributory factors such as co-morbidities, limited access to advanced healthcare, and delayed diagnosis intensify the burden of CHF in India, underscoring the urgent need for tailored interventions and optimal disease management strategies to curb these adverse outcomes effectively. These realities frame the critical context for studying drug utilization and prescribing patterns in CHF patients within tertiary care settings in India.

Drug utilization studies specifically focused on heart failure patients within the Indian context are notably scarce, despite the significant burden of the disease in the country. Heart failure in India is rising in prevalence due to demographic transitions and increasing cardiovascular risk factors; however, reliable data on the patterns of drug prescribing and medication use in this population remain limited [3]. Existing evidence from registries such as the Cardiology Society of India-Kerala Acute Heart Failure Registry highlights poor adherence to guideline-directed medical therapy, with only a quarter of patients receiving recommended treatments, underscoring the pressing need to better understand prescribing trends in real-world Indian settings [4]. Moreover, broader studies on drug utilization in India reveal challenges such as polypharmacy, incomplete prescriptions, and limited generic prescribing, but these studies often do not focus specifically on heart failure patients, indicating a critical knowledge gap in this area [5]. Addressing this void through targeted drug utilization research is essential for informing rational prescribing, optimizing therapeutic outcomes, and improving management strategies for heart failure in India's tertiary care hospitals.

Analyzing drug utilization patterns and prescribing trends is fundamental to optimizing the management of chronic conditions such as congestive heart failure (CHF). Understanding how medications are prescribed and utilized provides critical insights into the quality of care, adherence to clinical guidelines, and potential areas for improving therapeutic outcomes. Drug utilization studies enable healthcare providers to identify irrational prescribing, polypharmacy issues, and underuse of evidence-based therapies, which are particularly important in complex diseases like CHF where treatment regimens are multifaceted. Moreover, insights from prescribing patterns can guide interventions aimed at promoting rational drug use, enhancing patient safety, and reducing healthcare costs. In the Indian healthcare context, where prescription completeness and rational use often fall short of World Health Organization standards, such analyses are especially pertinent to improving clinical practice and patient outcomes [5]. Additionally, the suboptimal adherence to guideline-directed medical therapy in heart failure patients, as highlighted in regional registries, underscores the pressing need to evaluate and understand prescribing behaviors to bridge gaps in optimal care [4]. Ultimately, detailed drug utilization data form the basis for evidence-based policy-making and the development of targeted strategies to enhance drug therapy effectiveness in heart failure management [3]. Aim of our study was to analyze and evaluate the drug utilization patterns in patients diagnosed with congestive heart failure (CHF) in a tertiary care teaching hospital.

## METHODOLOGY

**Study Design and Setting** The present study was a retrospective observational study conducted at the Raichur Institute of Medical Sciences (RIMS), a tertiary care teaching hospital. Data were collected by reviewing inpatient case records of patients diagnosed with congestive heart failure (CHF) admitted to the medicine department between January and May 2024. Ethical approval for the study was obtained from the institutional ethics committee prior to data collection, ensuring compliance with ethical standards for research involving human subjects.

**Study Population** The study population included all inpatients diagnosed with CHF during the specified period. Inclusion criteria comprised patients admitted with a confirmed diagnosis of CHF based on clinical and diagnostic criteria. Patients with incomplete medical records or those admitted for conditions other than CHF were excluded from the study. The sample size consisted of 56 patient encounters, determined by the total number of eligible case records available during the study timeframe. A consecutive sampling technique was employed, including all patients meeting the inclusion criteria within the study duration.

**Data Collection** Data were collected using a structured data extraction form designed to capture patient demographics, detailed drug prescriptions, and clinical information from the case records. Prescription rationality was assessed using World Health Organization (WHO) core prescribing indicators, including average number of drugs per encounter, percentage of drugs prescribed by generic name, percentage of encounters with antibiotics prescribed, percentage of encounters with injections prescribed, and percentage of drugs prescribed from the essential drug list.

**Statistical Analysis** Descriptive statistics were utilized to summarize demographic data, drug utilization patterns, and prescribing indicators. Frequencies, percentages, means, and ranges were calculated to present the data clearly. Inferential statistical analyses were not specified in the study protocol; however, the data were interpreted in the context of WHO prescribing standards. Ethical considerations included maintaining patient confidentiality and anonymizing data during analysis and reporting.

## RESULTS

The present study included a total of 56 patient encounters diagnosed with congestive heart failure (CHF). The age distribution revealed that the majority of patients (50%) were in the 41-60 years age group, followed by 36% in the 61-80 years group, 13% in the 20-40 years group, and 2% above 81 years. Gender distribution showed a higher proportion of female patients (57%) compared to males (43%).

Regarding morbidity patterns, 29% of patients had CHF alone, while 71% had CHF with comorbidities such as diabetes, hypertension, acute coronary syndrome, and pulmonary edema.

The average number of drugs prescribed per encounter was 11, with the total number of drugs per encounter ranging from 3 to 17. Most patients received between 11 to 12 drugs per prescription.

The most frequently prescribed drugs in decreasing order of frequency were Ceftriaxone, Ranitidine, Furosemide, Atorvastatin, Aspirin, Normal Saline, Spironolactone, and Clopidogrel.

Antibiotics were prescribed in 79% of encounters, with the number of antibiotics per prescription ranging from 0 to 3. Specifically, 21% of encounters had no antibiotics prescribed, 57% had one antibiotic, 14% had two, and 7% had three antibiotics.

The World Health Organization (WHO) core prescribing indicators in this study were as follows:

1. Average number of drugs per encounter: 11
2. Percentage of drugs prescribed by generic name: 55%
3. Percentage of encounters with an antibiotic prescribed: 79%
4. Percentage of encounters with an injection prescribed: 98%
5. Percentage of drugs prescribed from the essential drug list: 87%

These findings indicate a high prevalence of polypharmacy and frequent use of antibiotics and injections among CHF patients in the tertiary care teaching hospital setting.

**Table 1: Age Distribution**

Age Group(years)	No.	Percentage (%)
20-40	07	13%
41-60	28	50%
61-80	20	36%
>81	01	02%
<b>TOTAL</b>	56	

The study included 56 patients with congestive heart failure. Age distribution was as follows: 7 patients (13%) were aged 20-40 years, 28 patients (50%) were 41-60 years, 20 patients (36%) were 61-80 years, and 1 patient (2%) was above 81 years.

**Table 2: Gender Distribution**

Gender	No	Percentage (%)
Male	24	43%
Female	32	57%

The study included 56 patients, with 24 males (43%) and 32 females (57%).

**Table 3: Morbidity Pattern with their mean duration of stay**

Sl no	Diagnosis	No.	Percentage (%)
1.	CHF	16	29%
2.	CHF with comorbidities like diabetes, hypertension, acute coronary syndrome, pulmonary edema etc	40	71%
	<b>Total</b>	56	

The study included 56 patients with congestive heart failure. Among them, 16 patients (29%) had CHF alone, while 40 patients (71%) had CHF with comorbidities such as diabetes, hypertension, acute coronary syndrome, and pulmonary edema.

**Table 4: Total number of drugs per encounter**

No. of drugs	No. of encounters	Percentage (%)
3	01	2%
4	01	2%
5	01	2%
7	03	5%
8	06	11%
9	04	7%
10	04	7%
11	07	13%
12	10	18%
13	06	11%
14	06	11%
15	03	5%
16	02	4%
17	02	4%

The total number of drugs prescribed per encounter ranged from 3 to 17. Specifically, 1 encounter (2%) had 3 drugs, 1 encounter (2%) had 4 drugs, 1 encounter (2%) had 5 drugs, 3 encounters (5%) had 7 drugs, 6 encounters (11%) had 8 drugs, 4 encounters (7%) had 9 drugs, 4 encounters (7%) had 10 drugs, 7 encounters (13%) had 11 drugs, 10 encounters (18%) had 12 drugs, 6 encounters (11%) had 13 drugs, 6 encounters (11%) had 14 drugs, 3 encounters (5%) had 15 drugs, 2 encounters (4%) had 16 drugs, and 2 encounters (4%) had 17 drugs.

**Table 5: Most frequently prescribed drugs**

Sl no	Name of drug	No. of encounters
1.	Ceftriaxone	72
2.	Ranitidine	49
3.	Furosemide	46
4.	Atorvastatin	42
5.	Aspirin	41
6.	Normal Saline	38
7.	Spirolactone	35
8.	Clopidogrel	28
9.	Metoprolol	25
10.	DNS	23
11.	Sacubitril	20
12.	Ondansetron	18
13.	Carvedilol	18
14.	Paracetamol	16
15.	Piperacillin+tazobactam	16
16.	Ramipril	15
17.	Oxygen therapy	14
18.	Enoxaparin	13
19.	Ringer Lactate	12
20.	losartan	9
21.	Calcium Gluconate	8
22.	Sodium bicarbonate	8
23.	Dobutamine	7
24.	Amlodipine	7
25.	Hydrocotisone	7
26.	Dobutamine	7
27.	Insulin	6
28.	Etophylline+Theophylline	5
29.	Ivabradine-	5
30.	Noradrenaline	4
31.	Valsartan	4
32.	Pantoprazole	4

33.	Torse mide	4
34.	Calcium	3
35.	Azithromycin	2
36.	Dexamethasone	2
37.	Telmisartan	2
38.	Ticagrelor	2
39.	Vit Bcomplex	2
40.	Streptokinase	1
41.	MgSO4	1
42.	Amikacin	1
43.	Lactulose	1
44.	Digoxin	1
45.	Sacubatr il+Valsartan	1
46.	Montelukast	1
47.	Dopamine	1
48.	Amoxicillin + Clavulanic acid	1
49.	Atenolol	1
50.	Dapagliflozin	1

Ceftriaxone, Ranitidine, Furosemide, Atorvastatin, Aspirin, Normal Saline, Spironolactone, Clopidogrel were most frequently prescribed drugs in our study as shown in the table

**Table 6: No. of Antibiotics in a prescription**

No of antibiotics prescribed	No of encounters	Percentage
0	12	21%
1	32	57%
2	08	14%
3	04	7%

In the study, the number of antibiotics prescribed per encounter varied as follows: 12 encounters (21%) had no antibiotics prescribed, 32 encounters (57%) had one antibiotic, 8 encounters (14%) had two antibiotics, and 4 encounters (7%) had three antibiotics

**Table 7 :WHO PRESCRIBING INDICATORS**

WHO Prescribing indicators	Result
<b>Average no of drugs per encounter</b> =total no of drugs prescribed/total no of encounters i.e. 627/56	11
<b>Percentage of drugs prescribed by generic name</b> =no of drugs prescribed by generic name/total no of drugs prescribed *100 i.e (344/627) *100	55%
<b>Percentage of encounters with an antibiotic prescribed</b> =no of patients to whom an antibiotic is prescribed / total no of encounters*100 ie (44/56) *100	79%
<b>Percentage of encounters with an injection prescribed</b> = no of patients to whom an injection is prescribed / total no of encounters*100 i.e.(55/56) *100	98%
<b>Percentage of drugs prescribed from essential drugs list</b> =no of the drugs prescribed from essential drug list/total no of drugs prescribed *100 i.e. (545/627) *100	87%

The WHO prescribing indicators in the study were as follows: the average number of drugs per encounter was 11; 344 drugs (55%) were prescribed by generic name; antibiotics were prescribed in 44 encounters (79%); injections were prescribed in 55 encounters (98%); and 545 drugs (87%) were prescribed from the essential drugs list.

## DISCUSSION

In the present study, you investigated the drug utilization and prescribing patterns among 56 patients with congestive heart failure (CHF) in a tertiary care teaching hospital, revealing that the majority of patients were aged between 41 and 60 years, with a female predominance (57%). Morbidity analysis demonstrated that 71% of patients had significant comorbidities

such as diabetes, hypertension, acute coronary syndrome, and pulmonary edema. Polypharmacy was notably prevalent, with an average of 11 medications prescribed per encounter, encompassing a range of 3 to 17 drugs. Commonly prescribed medications included Ceftriaxone, Ranitidine, Furosemide, Atorvastatin, Aspirin, Normal Saline, Spironolactone, and Clopidogrel.

These findings align closely with the patterns observed in prior studies examining medication use in heart failure patients. For example, polypharmacy is well-recognized as a common and challenging feature in CHF management, primarily due to the coexistence of multiple comorbidities necessitating complex therapeutic regimens. Consistent with your findings, previous research has reported high medication burdens in CHF populations, with the average number of drugs often exceeding five per patient, indicative of significant polypharmacy [6]. This complexity has been attributed to the necessity of treating both heart failure itself and associated conditions, which frequently include diabetes and hypertension as identified in your cohort.

Moreover, the demographic profile in our study with a substantial proportion of middle-aged to elderly patients corresponds with existing research emphasizing the aging nature of CHF populations and the resulting increased prevalence of comorbidities that compound pharmacologic management challenges [7]. The gender distribution favoring females in your study echoes observations from certain chronic disease research highlighting sex differences in disease prevalence and treatment patterns, although heart failure cohorts more commonly have a male predominance; this variance may relate to population-specific factors or sampling differences.

Our documentation of frequently prescribed drugs such as diuretics (Furosemide, Spironolactone), antiplatelets (Aspirin, Clopidogrel), and statins (Atorvastatin) mirrors guideline-directed medical therapy and is consistent with treatment approaches reported elsewhere for CHF patients with ischemic heart disease and fluid overload [8]. The inclusion of antibiotics (Ceftriaxone) and gastric protectants (Ranitidine) may reflect management of infection risks and gastrointestinal prophylaxis common in hospitalized and polypharmacy-prone populations.

Importantly, our identification of an average of 11 drugs per patient situates your study at the higher end of the polypharmacy spectrum compared to other reports—for instance, a median of 8 medications was noted at hospital discharge in a large Japanese registry of acute decompensated heart failure, with only 27.8% exceeding 10 medications [8]. This difference could be influenced by institutional prescribing practices, patient complexity, or differences in healthcare settings, highlighting the heterogeneity across tertiary care centers.

The high prevalence of comorbidities (71%) in your patient cohort is similarly reflected in the literature emphasizing the integral role of comorbid disease burden in underpinning polypharmacy and influencing clinical outcomes in CHF [6,9]. The frequent coexistence of diabetes and hypertension you observed aligns with known patterns, where these conditions substantially contribute to worsened heart failure prognosis and necessitate intricate medication regimens.

Finally, our findings support the growing consensus that managing polypharmacy in CHF requires a nuanced, multidisciplinary approach to optimize outcomes while minimizing adverse effects and drug interactions [7]. This is of heightened importance given the risks associated with higher medication counts such as increased mortality and rehospitalization, demonstrated in other cohorts [8]. Our study reinforces the imperative for tailored medication review and possibly deprescribing strategies to improve therapeutic appropriateness in CHF patients.

The present study's findings on the most frequently prescribed drugs in CHF patients, including Ceftriaxone, Ranitidine, Furosemide, Atorvastatin, Aspirin, Normal Saline, Spironolactone, and Clopidogrel, align with the complex and multifaceted pharmacological management typical of heart failure populations reported in other clinical settings. The notably high prescription rate of antibiotics, present in 79% of encounters with some patients receiving up to three different antibiotics, reflects a common clinical challenge in hospitalized CHF patients, where infection risk and infectious complications often necessitate empirical or targeted antimicrobial therapy. This pattern is consistent with the hospital-based management environment typical for CHF patients, as seen in similar tertiary care contexts.

Injection use being nearly ubiquitous (98% of encounters) further underscores the acute or inpatient nature of the study setting, where intravenous therapies are commonly employed. This matches observations in other studies where parenteral administration is prevalent during hospital admissions for acute decompensated heart failure or associated complications [10]. Such practices facilitate rapid drug delivery and fluid management, which are critical in CHF exacerbations.

The frequent use of agents such as Furosemide and Spironolactone, both cornerstone diuretics in CHF management, accords with evidence-based guidelines emphasizing diuretic therapy for symptomatic volume overload relief, a necessity corroborated in various treatment registries and clinical trials [11]. Similarly, the inclusion of Atorvastatin, Aspirin, and Clopidogrel addresses the high prevalence of ischemic heart disease in CHF patients, consistent with the management pattern recognizing coronary artery disease as a common comorbidity requiring antiplatelet and lipid-lowering therapies [11].

Our observation of extensive antibiotic use mirrors scenarios identified in heart failure cohorts where comorbid infections or prophylactic needs influence prescribing patterns, though it represents a higher proportion than typical outpatient settings where antibiotic stewardship is more controlled. This high antibiotic prescription rate may be attributable to inpatient clinical protocols or infection prevalence within your tertiary care hospital setting [10].

Moreover, the high injection use aligns with clinical practice in hospitalized CHF patients, where intravenous fluids such as Normal Saline support volume status management, and injectable drugs enable rapid therapeutic intervention. Such findings are corroborated by reports emphasizing medical complexity and invasive treatment modalities, including intravenous diuretics and other supportive therapies, in severe CHF exacerbations requiring hospitalization [12].

While our study did not specifically analyze medication adherence or pharmaceutical care interventions, parallels can be drawn with research highlighting the role of clinical pharmacist involvement in reducing medication errors and enhancing prescribing appropriateness during discharge in CHF patients [10]. Such multidisciplinary approaches may be particularly relevant given the intricate drug regimens involving polypharmacy, multiple routes of administration, and high-risk medications common in your cohort.

In the present study, the WHO core prescribing indicators revealed an average of 11 drugs per encounter, which is substantially higher than the averages reported in several comparable studies across tertiary care settings. For instance, a study in a tertiary care hospital in Sri Lanka reported an average of 4.8 drugs per encounter [13], while another investigation in an Indian tertiary teaching hospital found an average of 2.91 drugs per prescription [14]. Similarly, pediatric outpatient settings showed averages of 2.66 and 3.4 drugs per prescription in Eastern India and Nigeria, respectively [15,16]. This marked discrepancy suggests a higher degree of polypharmacy in your sample of patients with congestive heart failure (CHF), which may reflect the complexity of managing CHF but also raises concerns regarding polypharmacy-related risks.

Regarding the percentage of drugs prescribed by generic name, your present study found a moderate value of 55%, which is lower than the rates observed in some regional studies but higher than others. For example, Sri Lankan and Ugandan studies reported generic prescribing rates around 90% [13,17], while a study conducted in an Indian tertiary care institute reported a notably low rate of 10.05% [14]. Another paediatric study in South India even reported generic prescribing as low as 6.42% [18]. Your findings suggest room for improvement to encourage more generic prescribing, which could support cost-effectiveness and rational drug use in CHF management.

The percentage of encounters with antibiotics prescribed in your study was remarkably high at 79%, which significantly exceeds values reported in other tertiary care settings. For comparison, antibiotic prescribing ranged from 19.7% to 66.22% in various hospital-based studies in India, Uganda, and Nigeria [14,16,17]. Pediatric outpatient antibiotic use in Indian settings was reported between 23.3% and 36.8% [15]. The elevated antibiotic use in your study could reflect a higher infection burden or potentially represent overprescribing, emphasizing the need for stewardship interventions to optimize antibiotic utilization in CHF patients.

Similarly, the extremely high percentage of encounters with injections prescribed (98%) observed in your study starkly contrasts with much lower rates reported elsewhere, such as approximately 2% to 30% in tertiary hospital and primary care settings [13,15,19]. Such extensive use of injectable formulations might indicate aggressive management strategies in CHF or could suggest excessive reliance on parenteral therapy, with implications for patient safety and healthcare costs.

Finally, our finding that 87% of the drugs were prescribed from the essential drug list (EDL) aligns well with percentages reported in other investigations, which typically range from approximately 87% to over 96% [13,16,17]. This suggests satisfactory adherence to national or WHO essential medicines guidelines, which supports rational prescribing in CHF patients.

In summary, compared to similar studies, our present study demonstrates a notably higher average number of drugs per encounter and substantially increased antibiotic and injection prescribing rates, while generic prescribing and adherence to essential drug lists are moderate to satisfactory. These disparities underscore the complexity of prescribing in CHF patients within tertiary care and highlight areas for targeted interventions, such as reducing polypharmacy, promoting generic use, and optimizing antibiotic and injection use to enhance rational drug utilization and patient safety.

The present study has several limitations that should be acknowledged. Being a retrospective observational study, it relied solely on the accuracy and completeness of existing medical records, which may have introduced information bias due to incomplete or inconsistent documentation. The sample size was relatively small (56 patients) and limited to a single tertiary care teaching hospital, which may affect the generalizability of the findings to other healthcare settings or broader populations. Additionally, the study did not assess patient adherence to prescribed medications or clinical outcomes related to drug utilization, limiting the ability to evaluate the effectiveness of prescribing patterns. Inferential statistical analyses were not performed, restricting deeper exploration of associations between variables. Finally, potential confounding factors

such as severity of illness, socioeconomic status, and healthcare access were not controlled, which may have influenced prescribing behaviors observed in this study.

The present study recommends implementing strategies to reduce polypharmacy by regularly reviewing patient medication regimens to minimize unnecessary drugs and potential adverse interactions. Encouraging the prescription of generic drugs can enhance cost-effectiveness and accessibility. Antibiotic stewardship programs should be strengthened to optimize antibiotic use and prevent overprescribing, given the high antibiotic prescription rate observed. Additionally, rationalizing the use of injections by promoting alternative routes when appropriate can improve patient safety and reduce healthcare costs. Adherence to essential drug lists should be maintained to ensure standardized and evidence-based prescribing. Incorporating multidisciplinary approaches, including clinical pharmacist involvement, may further improve prescription appropriateness and patient outcomes. Future research should focus on assessing patient adherence and clinical outcomes to better evaluate the effectiveness of prescribing patterns in congestive heart failure management.

The present study analyzed drug utilization and prescribing patterns among patients with congestive heart failure (CHF) in a tertiary care teaching hospital, revealing a predominance of middle-aged to elderly patients with a higher proportion of females. A significant majority (71%) had comorbidities such as diabetes and hypertension, contributing to complex therapeutic regimens. Polypharmacy was notably prevalent, with an average of 11 drugs prescribed per encounter, indicating a high medication burden. The most frequently prescribed drugs included Ceftriaxone, Ranitidine, Furosemide, Atorvastatin, Aspirin, Normal Saline, Spironolactone, and Clopidogrel. Antibiotic use was widespread, present in 79% of encounters, alongside nearly universal injection administration (98%). The study's findings underscore challenges related to polypharmacy, antibiotic overuse, and injection reliance, while adherence to essential drug lists was satisfactory. These results highlight the complexity of CHF management in tertiary care settings and emphasize the need for rational prescribing practices to optimize therapeutic outcomes and enhance patient safety.

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