

*Practice Insights*

**PHARMACOTHERAPEUTICAL EVALUATION OF PATIENTS ADMITTED IN  
CLINICAL SETUP: A CASE REPORT**

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**ABSTRACT**

The aim of this study was to evaluate case histories of patients admitted and also to highlight the role of pharmacist at ward level in Hayat Abad Medical Complex (HMC), Peshawar. A standard questionnaire was designed and thirty case histories of different diseases in medical ward were collected. The percentage incidence of different diseases like, diabetes mellitus (6.7%), respiratory tract infection (13.3%), chronic obstructive pulmonary disease (COPD) (16.6%) and hypertension (6.7%) were documented, in which percentage incidence of malaria (16.7%) was higher from the rest of diseases. The drugs which have observed for numerous drug interactions were steroidal drugs, warfarin, PPI's, benzodiazepines, NSAID's, furosemide and anti T.B drugs. The most frequently recorded intervention was additive type (80%). In order to eliminate such undesired accomplishments clinical pharmacist services must be brought at ward level in health care system.

**Keywords:** Role of Pharmacist, Case histories, HMC, Ward level.

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**INTRODUCTION**

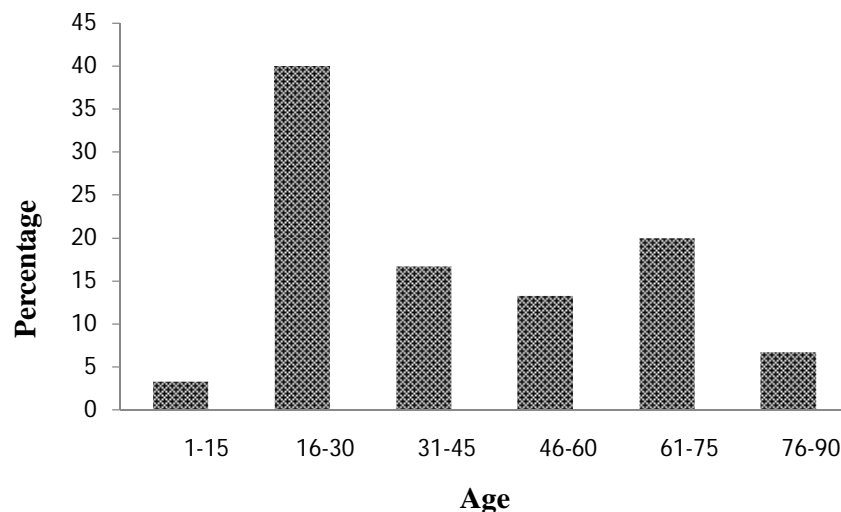
Pharmacist is the imperative part of health care team. Hospitalization and following discharge to home usually involve disruption of care, numerous changes in medication and lack of patient education and counseling that can lead to patient non-compliance and adverse drug events [1]. So it is of prime importance to counsel the patient and follow-up by the pharmacist. Pharmacists have clear role and must be the integral part of health care team because of increasing complexity in the management of drug therapy [2]. In the current study, different histories were collected from patients, which have different diseases. The disease incidence, drug-drug interactions, non-compliance and interventions made by the concern physicians, were compiled.

## MATERIAL AND METHOD

For recording patient's case histories, a standard questionnaire was designed, which include name, age, sex, past history, chief complaint, treatment chart, main cause of hospitalization, concurrent disease, side effects, adverse effects, drug interactions and other relevant information. We collected thirty case histories of different diseases in the medical ward of Hayatabad Medical Complex Peshawar, Pakistan, from January to February 2013. The relevant information was recorded with respect to patient demographic data, disease incidence, drug interactions, adverse drug reactions and lack of education.

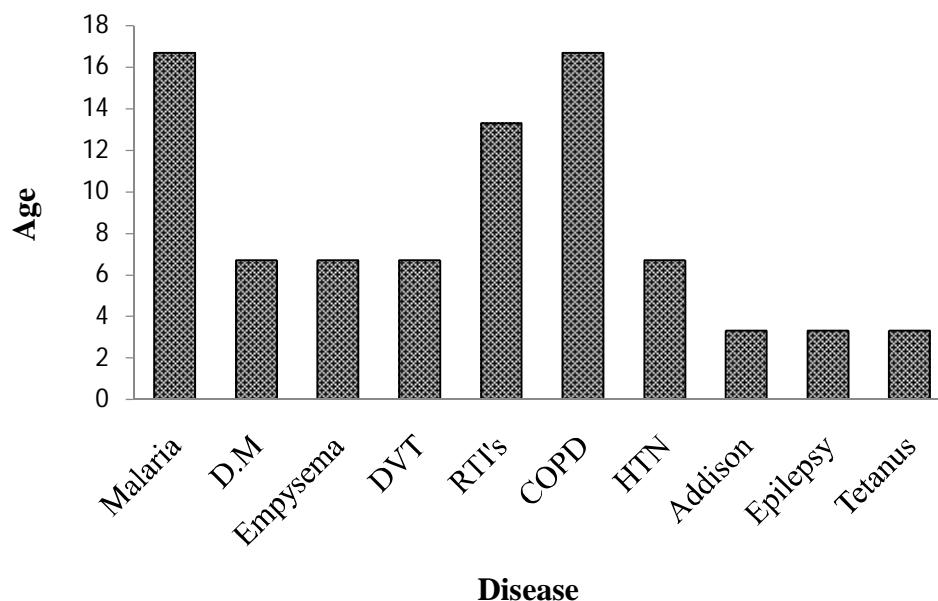
## RESULTS AND DISCUSSION

Though in routine cases the therapy was satisfactory, but in majority cases no attention was given to the initial treatment and in most of the cases drug-drug interactions were reported. On the basis of evaluation of different case histories, results are summarized in Table 1, Table 2, Table 3, Figure 1 and Figure 2. Table 1 shows the incidence of diseases which are much more common in male (63.3%) than female (36.7%). The total numbers of patients were thirty, out of which 11 were females and 19 were males. Irrespective of sex the most prevalent diseases were malaria and chronic obstructive pulmonary disease (COPD). The most common disease in male was malaria and in female Chronic obstructive pulmonary disease (COPD). The other diseases were lower respiratory tract infection (LRTIs), hypertension, diabetes mellitus, empyema, deep vein thrombosis, addison's disease, epilepsy, tetanus and pneumonia.



**Figure 1: Percentage incidence of diseases in different age groups**

Figure 1 shows the incidence of diseases in different group's age wise. We divided the patients into seven groups age wise as, 1 to 15, 16 to 30, 31 to 45, 46 to 60, 61 to 75, 76 to 90, with percentage incidence of different diseases 3.3%, 40%, 16.7%, 13.3%, 20%, 6.7% respectively. Patients who have age from 16 to 30 are more prone to infections (40%) and hence need extra care.



**Figure2: Percentage incidence of different diseases.**

Figure 2 described the percentage incidence of different diseases. The percentage incidence of malaria is greater from the rest of diseases (16.7%). The percentage incidence of different diseases like diabetes mellitus (6.7%), emphysema (6.7%), deep vein thrombosis (6.7%), respiratory tract infections (13.3%), chronic obstructive pulmonary disease (COPD) (16.6%), hypertension (6.7%), addison's disease (3.3%), epilepsy (3.3%) and tetanus (3.3%) respectively. Mass awareness should be there about diseases which are more common like malaria, COPD and hypertension. The people should not be exposed to the risk factors especially those who are more vulnerable.

Table 2 elucidate, drug interactions which were recorded. The drugs for which more interactions documented were steroidal drugs, warfarin, PPI's, benzodiazepines, NSAID's, furosemide and anti T.B drugs.

Five different types of interventions were noted. The most common and frequently recorded intervention was additive type that is 80% and the rest were changes in drugs (therapeutic alternative and change in class of drugs), dose changes, dosage form changes and others, 56.7%, 16.7%, 10% and 13.3% respectively. The reasons for drug interventions may be therapeutic success, availability, first line treatment, patient condition, suitability, behaviour of the patient, pharmacoconomics, non-compliance and toxicity. Drug intervention should be for therapeutic reasons not for economic burden. If the dose frequency is greater than the chances of non-compliance will be more. So, for the sake of compliance intervention should be there in dose frequency. If severe and life threatening adverse drug reactions are reported than the drug must be stopped or replaced by safer drug. If we need immediate therapeutic response or the patient is comatose, than the drug should be in parenteral form. Generally caution should be observed when physician do interventions.

**Table 1: Patient demographic and other clinical data**

S.NO.	Sex	Age	Main cause of hospitalization	Current disease
1	Female	65	Diabetes mellitus	CCF
2	Male	90	Emphysema	NIL
3	Male	70	CLD	NIL
4	Male	20	D.M-1	Pyelonephritis
5	Male	17	Malaria	NIL
6	Male	45	COPD	NIL
7	Female	20	Psychological disorder	NIL
8	Male	17	Epilepsy	NIL
9	Male	45	BNZ poisoning	NIL
10	Female	20	Hypoglycemia	CRF, HTN, D.M
11	Male	22	Hypertension	IHD and old CVA
12	Female	19	Addison's disease	NIL
13	Male	40	Emphysema	NIL
14	Male	60	Pneumonia	CRF
15	Female	30	UTI	HTN, CRF
16	Male	45	Malaria	NIL
17	Female	65	COPD	NIL
18	Male	62	Hypertension	D.M
19	Male	50	DVT	NIL
20	Female	45	Pleural effusion	Epilepsy, HTN
21	Male	12	Cerebral malaria	NIL
22	Female	17	COPD	NIL
23	Male	65	COPD	NIL
24	Male	60	Tetanus	NIL
25	Male	85	DVT	Urethral carcinoma
26	Female	20	Malaria, enteric fever	NIL
27	Female	19	LRTI'S	Metral stenosis
28	Male	55	LRTI'S	HCV +ve
29	Male	45	COPD	NIL
30	Female	27	Malaria	NIL

**Keys:** M = male; F = female; DM = Diabetes mellitus; CCF = congestive cardiac failure; CLD = chronic liver disease; COPD = chronic obstructive pulmonary disease; BNZ = benzodiazepine; CRF = chronic renal failure; HTN = hypertension; IHD = ischemic heart disease; CVA = cardiovascular accident; UTI = urinary tract infection; DVT = deep vein thrombosis; LRTI = lower respiratory tract infection.

**Table 2: Potential drug Interactions**

No.	Interaction in drugs	Effects
1	Lisinopril + aspirin	Decreased effects of ACE inhibitors
2	Lisinopril + furosemide	Enhance the effect of ACE inhibitor <sup>[3]</sup>
3	Lisinopril + insulin	Increased the sensitivity of insulin <sup>[6]</sup>
4	Metronidazole + warfarin	Decreased the hypoprothrombinemic response
5	Sulcef + warfarin	Enhanced the hypoprothrombinemic response
6	Myrin-p + warfarin	Increased the metabolism of warfarin
7	Moxifloxacin + warfarin	Inhibit the metabolism of warfarin <sup>[5]</sup>
8	Omeprazole + levofloxacin	Reduced the absorption of levofloxacin <sup>[3]</sup>
9	Hydrocortisone + piroxicam	Increased the risk of GI bleeding. <sup>[6]</sup>
10	Smoking + aminophylline	Increased dosing requirements <sup>[5]</sup>
11	Omeprazole + diazepam	Increased conc. of diazepam <sup>[1]</sup>
12	Esomeprazole + amlodipine	Increased conc. of amlodipine <sup>[6]</sup>
13	Calcium + amlodipine	Increased the effect of amlodipine
13	Calcium + amlodipine	Increased the effect of amlodipine
14	Furosemide + ceftriaxone	Increased risk of nephrotoxicity <sup>[6]</sup>
15	Salbutamol + furosemide	Cause serious hypokalemia
16	Dexamethasone + hydrochlorothiazide	Increased the blood glucose level <sup>[5]</sup>
17	Esomeprazole + diazepam	Increased the serum conc. of diazepam <sup>[6]</sup>
18	Prednisolone + isoniazid	Decreased the plasma conc. of isoniazid <sup>[3]</sup>
19	Sucralfate+ ethambutal	Decreased the plasma conc. of ethambutal <sup>[6]</sup>
20	Dexamethasone+ panadol	Increased the risk of GI bleeding <sup>[5]</sup>
21	Dexamethasone + pneumococcal vaccine	Impaired the immune response of vaccine <sup>[3]</sup>
22	Tezmidine + diazepam	Increased the sedative effects <sup>[5]</sup>

**Table 3: Intervention**

#	Types of Interventions	%age	Reasons	Remarks
1	Changes in drugs (Therapeutic alternative, changes in class of drugs)	56.7	Therapeutic success Pharmacoeconomics Physician first choice	For the attainment of good therapeutic response drug should be changed.

2	Addition of another drug	80	Therapeutic success Availability Patient need First line treatment	Drug should be added for therapeutic success not for economic burden.
3	Changes in dosage form	10	Suitability Condition of the patient Patient behavior	Comatose patient should be treated via i.v route. Patient should feel comfortable.
4	Changes in doses	16.7	Disease condition Patient need Toxicity	If the patient is ameliorating the dose should be decreased. The drug should be start in lower dose than gradually it will be increased.
5	Others	13.3	Non-compliance ADR'S	If the dose frequency is greater the chances of non-compliance will be more. In case of serious ADR's the drug should be stop immediately and switch over safer drug.

## CONCLUSION

It conceivable, therefore, that due to lack of quality health care system, there is a need of legally qualified and professionally competent pharmacist in hospitals. Pharmacist can help in minimizing poly pharmacy, drug-drug interaction, irrational prescription, dispensing and counseling of patient regarding their treatment.

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