



Evaluation of knowledge, attitude and practices towards the use of fixed dose combination of drugs among practicing doctors in a tertiary care hospital
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Abstract : Fixed Dose Combinations (FDCs) improve patient compliance, decrease the chances of drug resistance and decrease pill burden. However, a major health concern is irrational prescribing of FDCs. As practicing doctors are primarily involved in patient management at tertiary care hospitals, knowledge about prescribing FDCs is of paramount importance. This study was aimed to evaluate knowledge, attitude and practices towards the use of FDCs among practicing doctors in a tertiary care hospital. The study was carried out among the faculty and practicing doctors working at SMIMS, Kulasekharam in a tertiary care hospital. Out of fifty, thirty six practicing doctors gave their informed consent and were enrolled in the study. These practicing doctors belonged to the departments of medicine, obstetrics and gynaecology, surgery, orthopedics, pediatrics, dermatology, cardiology and psychiatry. A prevalidated questionnaire regarding knowledge, attitude and prescribing practice of fixed dose combinations was filled up and data was analyzed. Though the lecturers were aware about the FDCs, they did not know those that were listed by the WHO (9). The physicians were aware of all of the advantages and disadvantages of FDCs. On an average, only 9 of the lecturers had knowledge about the Essential Medicine List (EML). Common sources of information about FDCs used by the practicing doctors were medical representatives, colleaguespeers and medical education programmes. The most commonly prescribed FDCs by practicing doctors were of antimicrobial drugs, amongst which amoxicillin clavulanic acid was the most frequent. This study concluded that there is need to improve knowledge about rationality of FDCs, Essential Medical List and banned FDCs among the practicing doctors to promote the rational use of drugs.

Keyword : Essential medicine list, fixed dose combinations, knowledge attitude and practice, health care professionals

Introduction:

A Fixed dose combination (FDC) is defined as a combination of two or more active pharmaceutical ingredients in a single medicine irrespective of dosage form designed.^{1,2} FDCs enhance the efficacy of individual drugs, decrease the chances of drug resistance (e.g. antimicrobial drugs), improve the patient compliance and also decrease the pill burden on the patients. However, there are some disadvantages associated with the use of FDCs which include ineffective and unsafe treatment, exacerbation of illness and higher treatment cost.^{3,4,5} The

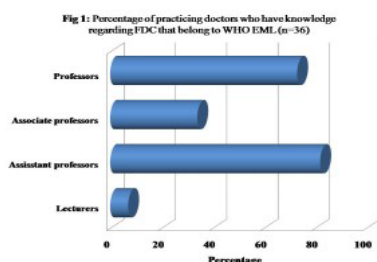
Eighteenth WHO Model List of essential medicines (April 2013) contains only 25 approved FDCs, while in India, irrational drug combinations are easily available and many of them available as over the counter (OTC) drugs.⁶ Most of the pharmaceutical companies manufacture a wide number of FDCs as novel products. FDCs are available for the treatment of various disorders e.g. cardiovascular diseases, diabetes, infectious diseases like tuberculosis, HIV infection, gastrointestinal infections, orthopedic conditions, cough and cold, psychiatric disorders and respiratory diseases.⁷ Tertiary care teaching hospitals play a prime role in terms of educating medical students who are the budding doctors, who will be providing health care facilities to the patients in the future, so their awareness about prescribing medicines is of prime importance for the treatment of patients. A number of studies have been carried out to evaluate the prescribing pattern of FDCs in India, but a survey about knowledge, attitude and practices for prescribing FDCs among health care professionals in this part of South India is lacking. The present study was hence conducted to evaluate the knowledge, attitude and practices about prescribing fixed dose combinations among the faculty and practicing doctors of the departments of medicine, pediatrics, obstetrics and gynaecology, surgery, otorhinolaryngology, ophthalmology, orthopedics, dermatology, cardiology, and psychiatry at a tertiary care centre.

Materials and Methods:

This was a cross sectional study done at a tertiary care centre in Tamil Nadu. The total duration of the study was for a period of 1 month from 15th June to 15th July 2014. The study proposal was approved by the Institutional Human Ethics Committee with Reference No. SMIMS/IHEC/2014/A/08. Those practicing doctors from various departments belonging to cadre of Professors, Associate professors, Assistant professors and Lecturers were included in the study. All these health care professionals gave written informed consent prior to the enrollment in the study. The knowledge, attitude & practices (KAP) towards FDC's among practicing doctors was evaluated by using a prevalidated questionnaire.^{7,8} The preliminary details of health care professionals who were enrolled in the study were recorded and the prevalidated questionnaire was distributed to them. The practicing doctors were asked to fill the questionnaire and it was collected later. The collected data was analyzed and expressed as percentages.

Results:

Out of 50 practicing doctors selected, 36 had given their written informed consent for the study. Though the lecturers were aware about the FDCs, they did not know those that were listed by the WHO (9%) [Figure 1]. The physicians were aware of all of the advantages and disadvantages of FDCs [Table 1]. The practicing doctors opined that most commonly prescribed FDCs were of antimicrobial drugs, amongst which amoxicillin + clavulanic acid was the most frequent [Table 2]. The common conditions for prescribing FDC's include hypertension, diabetes mellitus, infections, tuberculosis and contraception [Table 3]. Knowledge about rationality of a given FDCs was lacking in many of the practicing doctors. The practicing doctors obtained information regarding FDCs from medical representatives, colleagues/peers and medical education programmes [Figure 2].



FDC: Fixed Dose Combination
EML: Essential Medical List

Figure 2: Pie chart showing the various sources of information on FDC used by the practicing doctors (n=36)

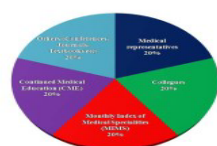


Table 1: Knowledge of advantages and disadvantages about FDC's among the practicing doctors in the tertiary care hospital (n= 36)

Percentage of practicing doctors (%)	
Advantages:	
Improved patient compliance	78
Enhances drug effects	83
Convenience	28
Reduced chance of adverse drug reactions	0
Less cost	0
Patient demand	0
Disadvantages:	
Inflexible dose adjustments	34
Difficulty in understanding which drug component is involved in causing adverse drug events	25

All of the options	24
Increased chance of adverse drug reactions	18
Higher cost	10
Incompatible pharmacokinetics	0

FDC's: Fixed Dose Combinations

Table 2: Commonly prescribed FDC's by practicing doctors from various departments of the tertiary care hospital (n=36)

FDC's	Percentage of practicing clinicians (%)
Amoxicillin + clavulanic acid	93
Ofloxacin + ornidazole	68
Paracetamol + diclofenac	60
Norfloracin + tinidazole	43
Levodopa + carbidopa	34
Amoxicillin + cloxacillin	33
Losartan + hydrochlorothiazide	28
Aspirin + clopidogrel	27
Pantoprazole + domperidone	25
Clindamycin + clotrimazole	26
Atenolol + amlodipine	20
Paracetamol + ibuprofen	17
Ethinyl estradiol + levonorgestrel	3
Trimethoprim + sulfamethoxazole	2
Escitalopram + clonazepam	0

FDC's: Fixed Dose Combinations

Table 3: Common conditions for prescribing FDC's by practicing physicians of various departments of the tertiary care hospital (n=36)

Med (%)	Ped (%)	OBG	Surgery	ORL	Ophthal	Dermat	Psy
Hypertension (92)	Bacterial infections (88)	Contraception (55)	Wound infections (84)	GERD (68)	Infections of the eye (53)	Fungal infections (38)	Depression (36)
Diabetes mellitus (92)	Common cold (71)	Pelvic infections (30)	Tuberculosis (10)	Allergic rhinitis (38)	Refractory error testing (37)	Acne (21)	Schizophrenia (12)
Myocardial infarction (86)	Tuberculosis (52)	Post operative analgesia (8)		Sinusitis (26)	Autoimmune conditions (18)		
Infections (84)	Wound infections (10)	HIV infections (4)					
Parkinsonism (64)							

Med: Medicine; Ped: Pediatrics; OBG: Obstetrics and Gynaecology; ORL: Otorhinolaryngology; Ophthal: Ophthalmology; Dermat: Dermatology; Psy: Psychiatry; GERD: Gastroesophageal reflux disease

Discussion:

The present study has assessed the level of knowledge, attitude and practices (KAP) among the practicing doctors in this institution. The knowledge indicates the understanding of a given subject. Attitude refers to the feelings towards that subject, as well as any preconceived ideas that they may have towards it. Practice refers to the ways in which one demonstrates their knowledge and attitude through their actions. The triad of knowledge, attitude and practice (KAP) has been utilized to create awareness for rationale drug therapy and for better health outcomes of the community. The triad of knowledge, attitude and practice can also be useful for finding the areas where deficiencies are present. Tertiary care teaching hospitals have a dual role to play in terms of educating medical students and providing health care facilities to the patients. Practicing doctors are primarily involved in patient management at tertiary care teaching hospitals, so their awareness about prescribing medicines is of prime importance for the treatment of patients. From the present study, the practicing doctors reveal that FDCs enhance drug effects (83%) and improves patient compliance (78%). Most of the practicing doctors were aware about the rationality of some FDCs (sulfamethoxazole+ trimethoprim, amiloride+ hydrochlorothiazide). A variety of NSAID combinations are available as over the counter (OTC) products. Thus, combining two NSAIDs does not improve the efficacy of treatment but only adds to cost of therapy and risk of the adverse drug reactions.^{14,15} In this study, Amoxicillin + clavulanic acid (93%) was the commonest FDC prescribed followed by Ofloxacin + ornidazole (68%), Paracetamol+ diclofenac (60%), Norfloracin + tinidazole (43%), Losartan + hydrochlorothiazide (28%) and Pantoprazole + domperidone (25%). Our study showed that knowledge on banned FDCs was lacking among the practicing doctors. The government of India has banned a total of 69 drugs and their combinations with other drugs for

manufacturing and marketing in India.⁸ Knowledge about the banned drugs/FDCs is important for practicing doctors. In this study practicing doctors were in favor of marketing of FDCs, which may be due to the convenience of prescribing, decreased pill burden of the patient and better patient compliance. In the present study, it was observed that medical representatives, MIMS/CIMS and peers journals and CMEs were the most common sources for information regarding FDCs used by the practicing doctors. Gautam et al.⁹ mentions the concern with irrational FDCs is that, they expose patients to unnecessary risk of adverse drug reactions as seen with pediatric formulations of nimesulide and paracetamol. Bapna et al.¹⁰ remarked that the trend of prescribing fixed dose combination of drugs is increasing in clinical practice. Goswami et al.¹¹ has carried a study on knowledge of FDC's which revealed 87% of the resident doctors were aware about FDCs. The above study also found that improved patient compliance (85%) and less cost (36%) were the major advantages, while difficulty in dosage adjustments was the common disadvantage of prescribing FDCs. Greenhalgh et al.¹² concluded from his survey that there are number of advantages associated with the use of FDCs, but inappropriate and indiscriminate use of FDCs due to poor knowledge may lead to irrational prescription. Patel et al.¹³ commented on a survey that irrational prescribing of FDCs lead to increased risk of adverse drug reactions, higher treatment cost, emergence of resistant organisms and for some time, treatment failure.¹³

Conclusion:

There is need to improve the knowledge about the FDCs included in the Essential Medical List, its usage and banned FDCs among the practicing doctors in order to promote the rational use of drugs for better health care to the society. Various educational programmes needs to be conducted periodically to update the KAP towards FDC among practicing doctors.

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