



Prescription Analysis of Drugs Prescribed For Children in Some Towns of Maharashtra

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ABSTRACT

Objective: To analyze the drug prescribed for the children in some towns of Maharashtra with reference to WHO Essential Drug List for Children, March 2011.

Method: Data for this study collected by II MBBS students at their home towns like Jalna, Solapur and Chipulun with the help of prescription analysis form prepared by Department of Pharmacology. Rationality of prescription was evaluated as per WHO Model List for Essential Drugs for Children (2011).

Results: Total 46 prescriptions of issued for children in Jalna, Solapur and Chipulun were analyzed. 31.48 % drugs prescribed for children in these towns were according WHO list of Essential Drugs for Children. Out of total 108 drugs prescribed 39.81 % were FDCs. 27.91% prescribed FDCs were rational. FDCs prescribed in this study were mainly from drug groups like antibiotics (25.58 %), vitamins/minerals (23.26 %), cough /cold (27.91 %) and analgesics (18.60 %) FDCs. Rational FDCs prescribed in this study were from the class of antibiotics.

Conclusions: More than 68% prescribed drug for children in towns are not in accordance with WHO Model List of Essential Drugs for Children. Interventions to rectify over prescription of antimicrobials and cough/cold FDCs in children are needed. Vitamins/Minerals FDCs many times only add to the expenditure bill of the patient without giving any potential benefit. Vitamins and Minerals FDCs prescription should be based on deficiency status. Making availability of WHO/National Essential Drug List for children to all the prescribing physicians and organizing regular workshop/ educational campaign for rational prescribing may help in this regard.

Keywords: Children prescription analysis, rational use of drugs in children, vitamins used in children.

1. INTRODUCTION:

Prescription monitoring and drug utilization studies may help to identify the problems involved in therapeutic decision and promote the rational drug prescribing.¹ Even in the presence of regulatory guidelines in the form of WHO model list of essential drugs for Children, 3rd edition, March 2011 (WHO EML) which includes total 271 medications and only 12 Fixed Dose Combinations (FDCs)² and Indian Academy of Pediatrics List of Essential Medicines for Children, 2011³ (IAP EML) which include 134 total drugs and 13 FDCs³, FDCs are also being used widely for children in India. Pandey et al.⁴ observed polypharmacy and FDCs is being observed commonly in

children's prescriptions. Studies on focusing on pediatric prescriptions monitoring are lacking in India as well as in other countries. Hence, we undertook this study with following aims and objectives.

2. AIMS AND OBJECTIVES

- 1) To analyze the drug pattern prescribed for children in some towns of Maharashtra
- 2) To find out whether drugs are prescribed as per WHO Model List of Essential Drugs for children 3rd Edition, 2011
- 3) To find out group of drugs which are commonly prescribed for children in towns.

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- 4) To find out common diagnoses for the use of commonly prescribed groups of drugs.

3. MATERIALS AND METHODS

3.1. Study site: II MBBS students of Smt. Kashibai Navale Medical College and Hospital, Narhe Ambegaon, Pune, Maharashtra, India collected data of their home town Jalna, Solapur & Chiplun from the prescriptions issued for children.

3.2. Study design and sampling: Cross sectional observational study.

S.No.	Parameter	No (%)
1	Age (yrs)	
	0-1	13(28.26)
	2-5	21 (45.65)
	6-12	12 (26.09)
2	Sex	
	Male	32 (69.57)
	Female	14 (30.43)

Table1: Demographic characteristics of the study population-No (%)

3.3. Study tools:

Data collection: Semi-structured questionnaire prepared by Department of Pharmacology was used for data collection.

Information obtained: Demography, Names of all the drugs with doses prescribed for children, frequency of administration, duration of therapy, diagnosis, any adverse effects to prescribed drugs were noted by parents during the therapy.

Rationality assessment: Rationality of prescribed drugs was assessed in accordance with WHO Model List of Essential Drugs for Children, 3rd Edition, 2011.2

4. RESULTS

35.19 % prescribed drugs were from WHO EML for Children (2011) and out of 39.81 % prescribed FDCs, 20.93% FDCs were compliant with WHO EML. (Table 2)

S.No.	Indicators	No (%)
1	Total prescriptions	46
2	Total drugs prescribed	108
3	Included in WHO Model list	38 (35.19)
4	FDCs prescribed	43 (39.81)
5	Rational FDCs	12 (27.91)
6	FDCs in Essential Drug List	9 (20.93)
7	Average number of drugs per prescription	2.35

Table 2: No (%) drugs prescribed for children in Maharashtra

Antimicrobials, vitamins, cough/cold preparations and analgesics were commonly prescribed in towns (figure 1, Table 2). Cough/cold and analgesics FDCs were irrational FDCs that were prescribed for children (Table 2). Antimicrobials were prescribed more for children in Jalna whereas cough & cold preparations were prescribed more in Solapur & Chiplun. Syrups (59%) were prescribed commonly in towns and capsules/ tablet prescribed were

17.59 %. (Figure 2) Tablets/capsules were prescribed some times in less than 2 years children.

S.No.	FDCs drug class	FDCs	Rational FDCs	FDCs in EML (Children)
1	Antimicrobials	11 (25.58)	11 (100)	8 (81.81)
2	Vitamins/minerals	10 (23.26)	1 (10)	1 (10)
3	Cough/cold preparations	12 (27.91)	0	0
4	Analgesics	8 (18.60)	0	0
5	Others	2 (4.65)	0	0
	Total	43	12 (27.91)	9 (20.93)

Table 3: Drug groups of FDCs prescribed for children in towns of Maharashtra- No (%)

Chronic cough	Cellullitis
follicular tonsillitis / URTI	Acute gastroenteritis
LRTI	Amoebiasis
Consolidation/ bronchopneumonia	Ricketssial fever
Asthmatic bronchitis	Diarrhea/ bacillary dysentery
UTI	Roundworm infection
Infective hepatitis	Scabies
Febrile convulsions	Chicken pox
Enteric fever / enteric fever with toxemia	Septicemia
	Malarial fever

Table 4: Diagnosis for antimicrobial prescription for children in towns of Maharashtra

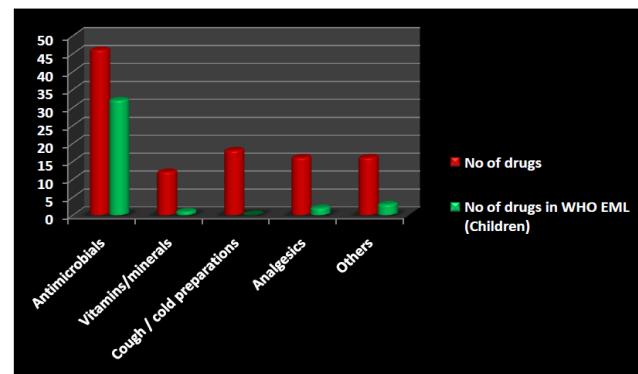


Figure 1: Different drug groups prescribed for children in towns of Maharashtra

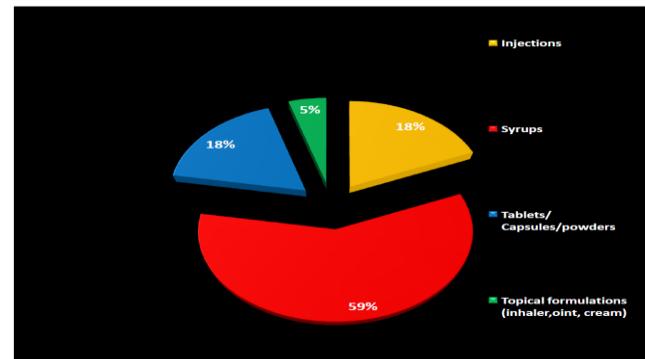


Figure 2: Different drug formulations prescribed for children in towns of Maharashtra

5. DISCUSSION

Less than 50% drugs prescribed for children in towns are not as per WHO EML for children.² FDCs of antimicrobials, analgesics and cold/ cough were prescribed more for children in this study. Most of the FDCs were not compliant with WHO EML for Children.²

Antimicrobial FDCs prescribed for children were rational. Wide range of use of FDCs is leading to unnecessary drug use, ADRs and increased expenditure on medicine by the parents. In one study, prescription of cephalosporins, macrolides and not approved drug for community acquired pneumonia like quinolones was observed oftenly and recommended region specific guidelines for antibiotic use in children.⁵ Antibiotic are prescribed frequently for respiratory tract ailments. Drug use for upper respiratory tract infections (URTI) in children should be based on clinical improvement, cost effectiveness and reduction in potential risk of side effects.⁶

Vitamins/Minerals FDCs were prescribed commonly for children in towns. Vitamins/Minerals FDCs many times only add to the expenditure bill of the patient without giving any potential benefits.⁷ Vitamins and Minerals FDCs prescription should be based on deficiency status of that individual patient. IAP EML for Children, October 2011 had given place to multivitamins and iron and folic acid FDCs³ whereas these FDCs are not included in WHO EML for Children.²

When we compare data of this study with other SKNMC study⁸ on drug prescriptions for children, it was observed that prescription pattern that was observed with private non teaching hospital paediatricians was comparable with prescribed drugs for children in towns. Whereas teaching hospital paediatricians had prescribed more number of drugs from WHO EML and less number of FDCs in their prescription

Face-to-face education by organizing seminars, workshops for rational prescribing, structured order forms and focused educational campaigns are needed for improving rational drug prescription.^{9, 10}

Prescription audit studies can be repeatedly carried out to keep watch overuse of antimicrobials and nutritional products¹¹ and also to find out causes for over consumption of drugs that are outside the WHO/ National Essential drug lists.

6. CONCLUSION:

Only 35 % drugs prescribed for children in towns of Maharashtra are according to WHO Model List for Children. Interventions to rectify over prescription of antimicrobials, cough/cold FDCs and nutritional products FDCs are needed. Making availability of WHO/National Essential Drug List for children to all the prescribing physicians may help in this regard. There is need to develop regional guidelines for antibiotic use in children so

as increase use of effective drugs in that particular region. URTIs drugs use should be based on rational medication, clinical improvement, cost effectiveness and decreased risk of adverse effects.

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Conflict of Interest: None Declared

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