DRUG RELATED PROBLEMS CAUSING HIGH INCIDENCE OF ADMISSIONS IN A BRAZILIAN HOSPITAL PEDIATRIC EMERGENCY UNIT: A PROSPECTIVE AND OBSERVATIONAL STUDY.

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OBJECTIVES

Determine the incidence of Drug Related Problems (DRPs) for those admitted to the hospital pediatric emergency unit, and provide information about drug use, with the purpose of improving the rational use of medicines.

METHODOLOGY

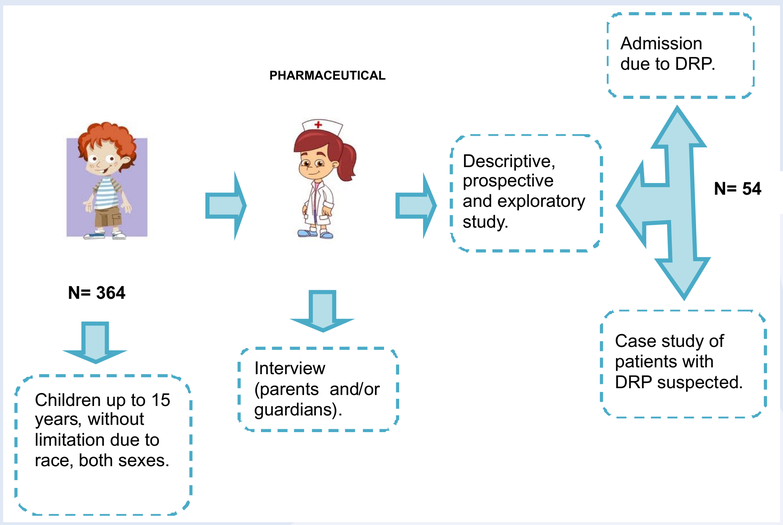

Figure 1: Representative schema of applied methodology. DRPs - Drug related problems

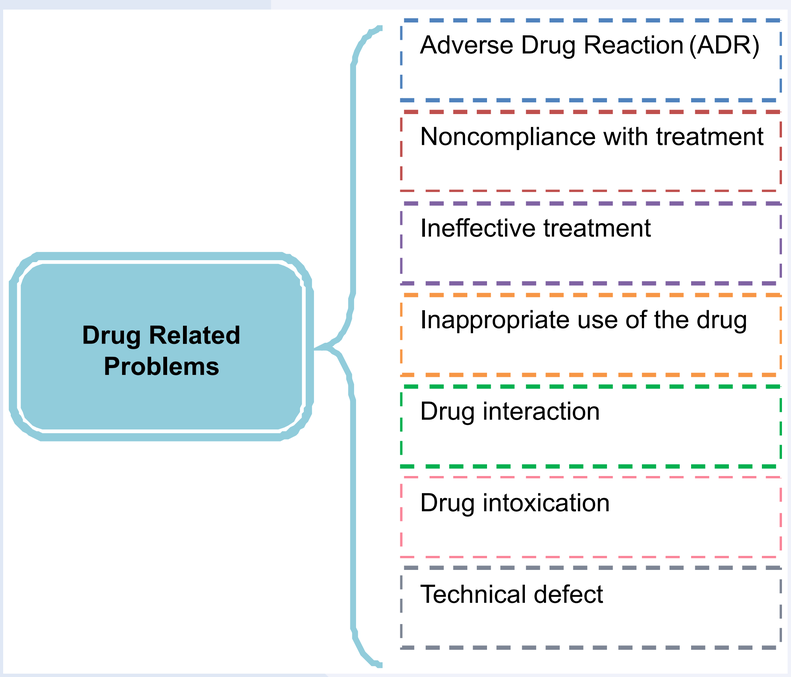

Figure 2: Classification of Drug related problems.

RESULTS

During the study period, 4,926 patients were admitted in Pediatric Emergency Unit.

Of these, 364 (7.4%) were treated by the clinical pharmacy. It was observed in 54 patients (14.8) DRP as admittance cause.

The most occurrences of DRP was classified as mild severity (n=38; 70.4%), followed by moderate (n=16; 29.6%). It was not detected serious or fatal adverse events in the patients enrolled in the research.

The most frequent adverse event was the Ineffective Treatment (46.4%), followed the incidence of ADR (n=12) and the Inappropriate Use of the Drug (n=9) that appear in similar proportion, 22.2% and 16.7% respectively (Figure 3). The Table 1 shows the frequency of adverse events related to age group studied.

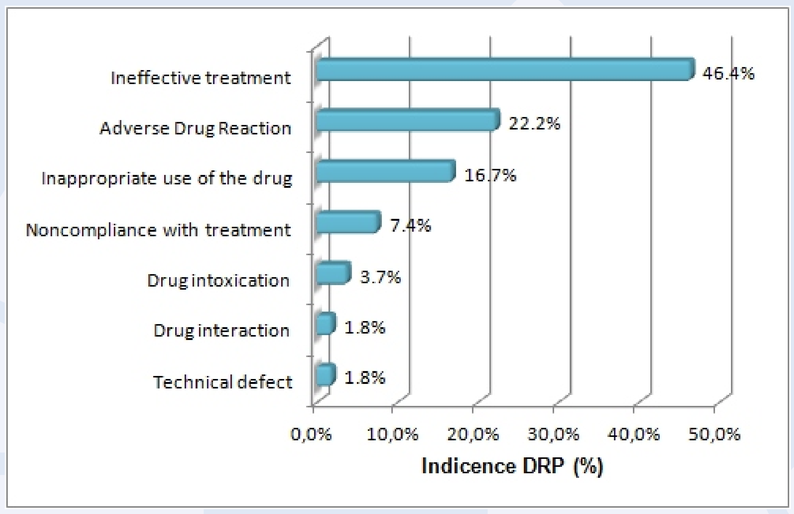

Figure 3: Incidence of DRP in the pediatric emergency unit.

In the present study, the most common DRPs were further sub-classified and quantified according to the causality. The Ineffective Treatment was derived in 76% of cases, from a refractory condition of the administered drug; followed by 12% of ineffective due to a sub-dose prescription, 8% of ineffective due to the prescribed drug is not indicated for the condition presented by the patient and, 4% due to exogenous factors and environmental.

Table 1 Characteristics and profile of drug utilization of patience treated by the clinical pharmacy (general population and DRP)

Characteristics	The general population			Population DRPs		
	Served nº	%	Average (years)	Served nº	%	Average (years)
0-4 years	201	55.2	1.65±1.18	28	51.9	2.01±1.38
5-9 years	102	28.0	6.76±1.49	18	33.3	7.29±1.61
10-15 years	61	16.8	11.6±1.40	8	14.8	11.5±1.31
Total	364	100.0		54	100	
Gender						
	nº	**%**		**nº**	**%**	
Feminale	156	42.9		27	50.0	
Male	208	57.1		27	50.0	
Total	364	100		54	100.0	
Ethnicity						
	nº	**%**		**nº**	**%**	
White	279	76.6		40	74.0	
Brown	43	11.8		10	18.5	
African descent	27	7.4		3	5.6	
Uninformed	15	4.2		1	1.9	
Total	362	100		54	100.0	
Main drug classes related to DRPs						
				nº	**%**	
Antibiotics				15	21.7	
Analgesic/Antipyretic				13	18.8	
Bronchodilator				10	14.5	
Antihistamine				5	7.3	
Neurological disorders				6	8.7	
Other therapeutic classes						
Total				20	29.0	
				69	100.0	
Number of prescribed or administered medications in pediatric emergency unity						
	nº	**Average/patient**		**nº**	**Average/patient**	
Managed service	68	5.4		19	2.8	
Use after discharge	115	3.2		26	2.1	
Prescription Drugs						
				nº	**%**	
Prescribed				33	61.1	
Self-medication				10	18.5	
Uninformed				11	20.4	

Table 2: Incidence of Drug Related Problems to age group, considering the total number of attendances by age group.

Drug Related Problems (DRP)	0-4 years		5-9 years		10-15 years	
	nº	%	nº	%	nº	%
Adverse Drug Reaction	11	5.5	1	1.0	0	0.0
Noncompliance with treatment	2	1.0	2	1.9	0	0.0
Ineffective treatment	10	4.9	11	10.8	4	6.6
Inappropriate use of the drug	4	2.0	2	1.9	3	4.9
Drug interaction	1	0.5	0	0.0	0	0.0
Drug intoxication	0	0.0	1	1.0	1	1.6
Technical defect	0	0.0	1	1.0	0	0.0
Total	**28**	**13.9**	**18**	**17.6**	**8**	**13.1**

nº - absolute number.

The respiratory and gastrointestinal system were the most commonly affected organs, and antipyretic/analgesic were the most common drugs associated with ADRs. The study of causality of ADRs, only 2 cases (3.7%) could be considered defined, according to Naranjo algorithm.

In 54 patients admitted by DRP, 39 drugs were involved in this cause. Therapeutic classes that caused more DRPs were the beta-lactam antibiotics (nº8/20.5%) and analgesics / antipyretics (nº13/33.3%), mostly Amoxicillin, the Dipyrone and Paracetamol (Figure 4).

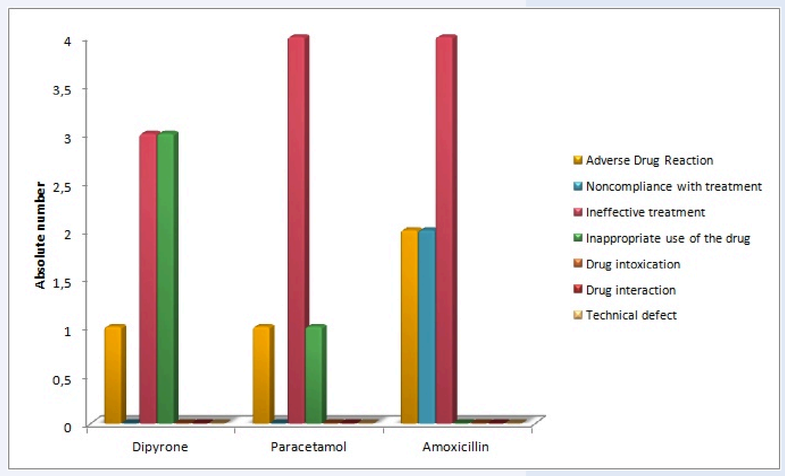

Figure 4: Drugs that were related a major frequency of admission for the Adverse drug Event. ADR adverse drug reaction.

CONCLUSION

The data may be used for designing the epidemiology profile in pediatric patients, showing that there is a high incidence of PRMs that cause hospitalization, adding unnecessary cost to the health system. More study is necessary in both of Pharmacoepidemiology and Pharmacovigilance in Pediatrics area to design the PRMs involved for an improvement of safe use medicines in pediatric patients.

Key-words: Pharmacoepidemiology, Pharmacovigilance, Pediatrics, Emergency Unit