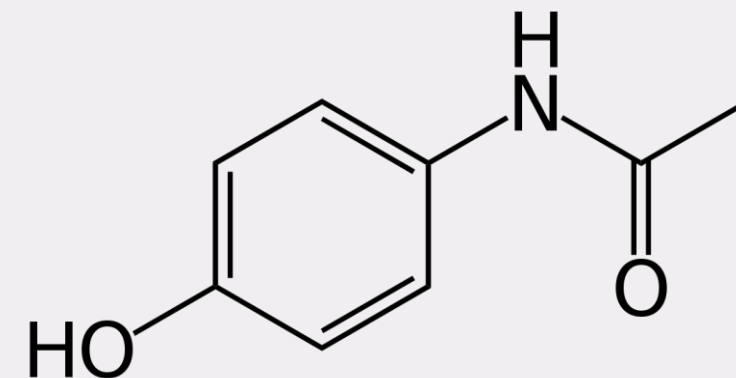


Paracetamol Use (and/or Misuse) in Children in Enugu, South-East, Nigeria

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RESEARCH ARTICLE

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Paracetamol use (and/or misuse) in children in Enugu, South-East, Nigeria

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Abstract

Background: Paracetamol (also known as acetaminophen) is the commonest available analgesic and anti-pyretic. It is readily accessed from pharmacy, patent medicine and provision shops as over the counter drug making it a potential drug of abuse, especially in children. We sought to find its use and/or misuse in children seen at the paediatric outpatient clinic of the University of Nigeria Teaching Hospital (UNTH) Ituku-Ozalla, Enugu.

Objective: To determine the dosage, formulation, and frequency of paracetamol administration to children by caregivers and factors associated with its use and/or misuse.

Method: An observational prospective study involving 231 children and their caregivers seen at the paediatric outpatient clinic of the University of Nigeria Teaching Hospital, Ituku - Ozalla, Enugu between June and November 2011 was undertaken. Data on paracetamol use before presentation to the clinic, in addition to demographic and other data were obtained from the caregivers using a structured questionnaire. Ethical consent for the study was obtained from the Hospital Ethics and Research Committee and informed consent was further obtained from the caregivers of the children.

Results: A total of 231 children aged six weeks to 16 years and their caregivers participated in this study. The mean ages of the children and their caregivers were 3.8 and 33.9 years, respectively. One hundred and thirty three of the children studied were males while 98 were females. Most of the children (75.6%) received paracetamol at home before presenting. Paracetamol tablet alone or in combination with the syrup was mostly used (60%) and this observation was made across all age groups. The commonest reason for using paracetamol tablet instead of the syrup was that it was more effective. Most caregivers relied on past experience (71.2%) rather than on enclosed information leaflet to decide the appropriate dosage. Half of the children also received other medications, mainly anti-malarials and antibiotics.

Conclusions: Paracetamol was commonly given to children on "self prescription" basis and the tablet formulation was most frequently used, with the possibility of misuse and overdose. Caregivers need to be educated on age-appropriate formulations which are less likely to lead to overdose.

Keywords: Paracetamol, Use, Misuse, Children, Caregivers

Background

Paracetamol (also known as acetaminophen) is the most widely used analgesic and antipyretic [1]. It is found in many over the counter and prescription products. Given in the right dosage it is not associated with many side effects; however prolonged use may produce renal injury and massive overdose may produce hepatic injury [1]. It

is the most common pharmaceutical agent involved in overdose particularly below the age of 6 years [2,3]. There is a particularly significant risk of paracetamol overdose in infants and children because of the varying dosing schedules and the variety of formulations with different strengths [3]. The easiest way to inadvertently overdose on paracetamol is to combine various cough, cold and teething medications because people are unaware that paracetamol is contained in most of them [4].

Paracetamol is a weak inhibitor of the synthesis of prostaglandins. The in vivo effects of the drug are similar to those of selective cyclooxygenase -2 inhibitors [5].

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By the end of this presentation you will be able to :

- 1 Background
- 2 Methods
- 3 Results
- 4 Discussion
- 5 Conclusion



Paracetamol





- Paracetamol (also known as acetaminophen) is the most widely used analgesic and antipyretic.
- Found in many over the counter and prescription products.
- Right dosage, it is not associated with many side effects; however, prolonged use may produce renal injury.



- The overdose of paracetamol because of combining various cough, cold and teething medications (because people are unaware that paracetamol is contained in most of them).
- Liver injury can happen in children if they take does more than 75 mg/kg/day for at least 2 days.



Methods



- and Aim
- analysis
- criteria
- criteria
- procedure
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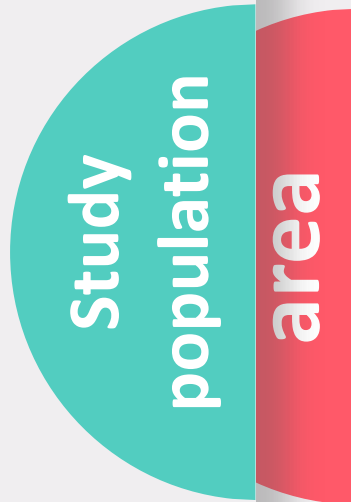


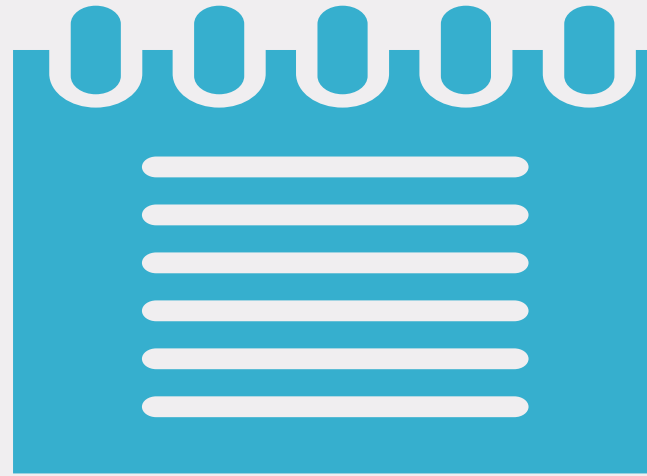
Study area

The study was conducted at the pediatric outpatient clinics of the Enugu.

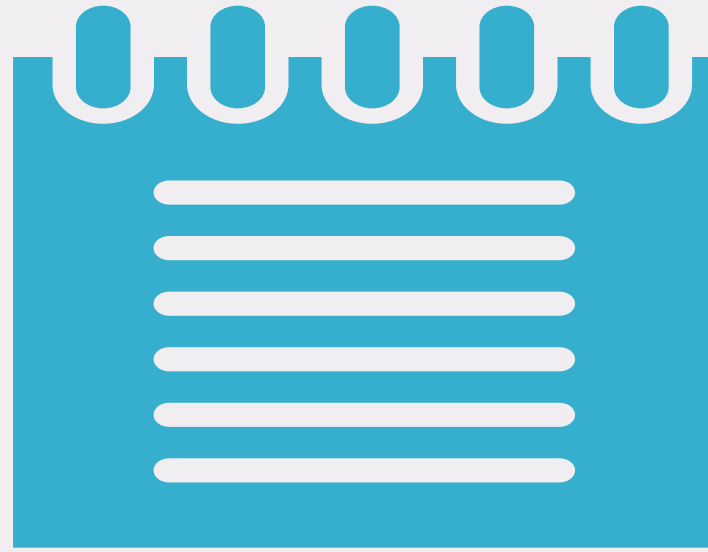


231 children
6 weeks to 16 years
between June and November 2011





1. A structured self administered questionnaire was used to collect information from the caregivers of children (and older children who came unaccompanied).
2. Information sought included socio-demographic characteristics, paracetamol use before presenting i.e. including dosage and other medications given.



3. Efforts were made to confirm that the children actually received paracetamol **only**.
4. By showing the caregivers different formulations and packs of the drug used.

and Aim

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5. Paracetamol over dose was assessed based on the frequency of administration or dose administered.

6. If frequency of administration that exceeded **4 times in 24 hours** period was regarded as abuse.

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Doses	Ages
Exceeded 10 mg/kg	Under 3 months
More than 60 mg to 120 mg (2.5 ml to 5 ml oral suspension)	Children 3 months to 1 year
More than 120 to 250 mg (5 mL to 10 mL of oral suspension)	1 to 5 years
More than 250 mg to 500 mg	6 to 12 years
More than 1000 mg	Above 12 years

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**Ethical
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Criteria**



Children aged between 6 weeks and 16 years and those in whom informed consent was obtained were included in the study.

**Inclusion
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Exclusion Criteria



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Severely ill children Subjects and those unwilling to participate in the study were excluded.

Ethical and Aim



- Data was analyzed with SPSS version 19. An initial frequency count of all variables was done and represented in tables.
- The ages and sex of the children were compared using Chi square test.

Data analysis

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Ethical and Aim



- Chi square test was also used to compare the relationship between age and formulation of paracetamol administered.
- The level of significance was set at $p \leq 0.05$.

Data analysis

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Data analysis

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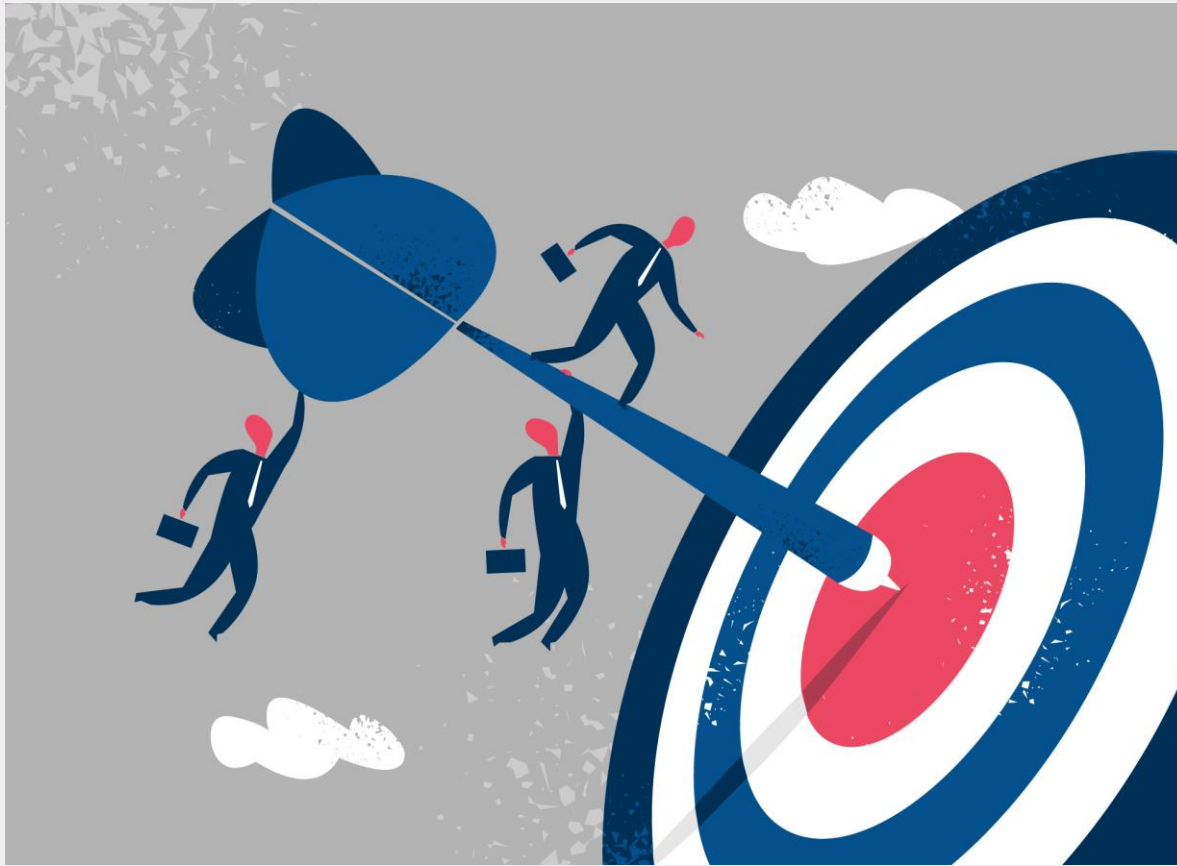
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- Ethical clearance for the study was obtained from the Ethics and Research Committee of the University of Nigeria Teaching Hospital.



- To determine the pattern of paracetamol administration in children.



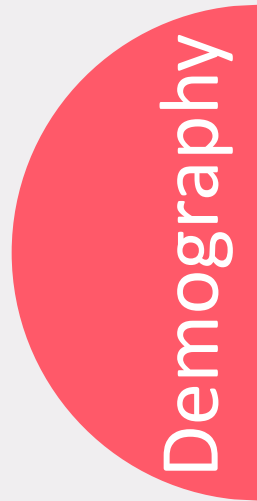
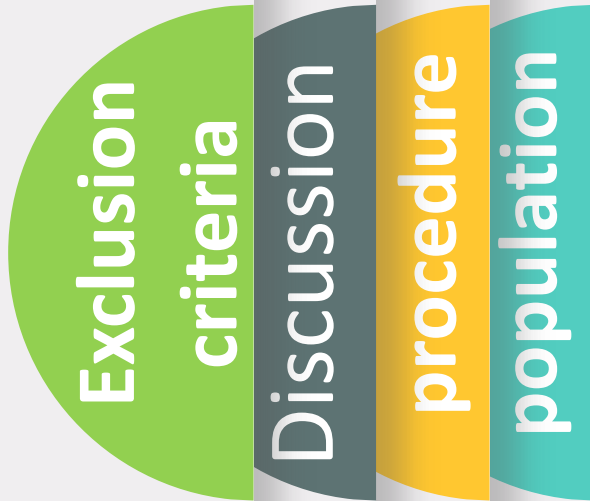


Results



Table 1: Age and sex distribution of the children

Age of Clients (years)	Male (%)	Female (%)
Less than 5	90 (67.7)	71 (72.4)
5-10	30 (22.6)	17 (17.3)
11-16	13 (9.7)	10 (10.3)
Total	133 (100)	98 (100)



Exclusion
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Table 2 Reasons for Administering Paracetamol

Symptom	Frequency (%)
Fever	145 (62.7)
Cough and/or Catarrh	17 (7.4)
Abdominal pain/discomfort	9 (3.9)
Ear ache	8 (3.5)
Skin rash	6 (2.6)
Generalized body pains	5 (2.2)
Fast/difficulty in breathing	4 (1.7)
Convulsions	3 (1.3)
Others (injury, tooth ache, excessive crying, vomiting)	6 (2.6)
No Response	28(12.1)
Total	231

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Table 3 Relationship between age and formulation of Paracetamol administered

<u>Age (yrs)</u>	<u>Less than 5 (%)</u>	<u>5-10</u>	<u>11-16 (%)</u>
<u>Age of Clients</u> <u>(years)</u>		<u>(%)</u>	
Tablet	45(28.0)	28 (59.5)	12 (52.2)
Syrup	64 (39.8)	2 (4.3)	0 (0)
tablet and syrup	18 (11.2)	2 (4.3)	1 (4.3)
No response	34 (21.0)	15(31.9)	10(43.5)
Total	161(100)	47(100)	23 (100)

$\chi^2 = 39.2, df = 4, p = 0.00.$

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Demography

Most of the children described in this study received paracetamol, especially to treat febrile episodes.

Table 4 Source of the Paracetamol Prescription

Prescriber	Frequency (%)
Doctor	46 (20.0)
Nurse	15 (6.5)
Patent Medicine Dealer/Pharmacist	10 (4.3)
Self.	104 (45.0)
No response	56 (24.2)
Total	231 (100%)

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Table 5 Determination of dose administered

Method of dose determination	Frequency (%)
Directions on the medication	29 (26.1)
Past experience	79 (71.2)
Health care workers	3(2.7)

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Table 6 Dose and frequency of paracetamol administration distributed according to the age groups

Dose/frequency	6wk < 5 yrs	AGE GROUPS 5–10 yrs	6-16 years	Total
2.5 ml	34	0	0	34
≤4 times	3	0	0	3
>4 times				
5 ml	2	1	0	3
≤4 times	0	0	0	0
>4 times				
Half tablet (250 mg)	22	1	23	46
≤4 times	0	0	0	0
>4 times				
1 tablet (500 mg)	31	22	3	56
≤4 times	1	1	0	2

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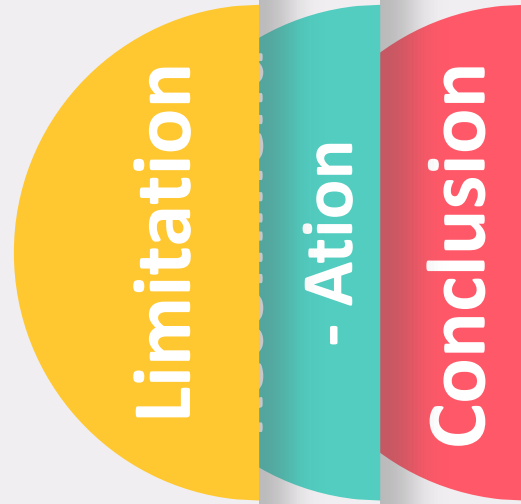
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Dose/frequency	6wk < 5 yrs	AGE GROUPS 5-10 yrs	6-16 years	Total
>4 times				
1 tablet (500 mg)	31	22	3	56
≤4 times	1	1	0	2
>4 times				
1 and 1/2 tablets	0	0	1	1
≤4 times	0	0	0	0
>4 times				
2 tablets	2	4	8	14
≤4 times	0	0	0	0
>4 times				
Total	95	29	35	159





Conclusion



Limitation

- Ation



CONCLUSION

Conclusion

Paracetamol is an invaluable over-the-counter medication which is safe, readily available and affordable; though given in appropriate dose in this study; however, it has great potential for misuse and overdose.

Limitation



Recommend

- Ation

Conclusion

More education concerning paracetamol should be given to caregivers and older children on its appropriate dosing to avoid serious adverse events when given inappropriately.



A population based study or one carried out in a primary health care rather than hospital based may give a better picture of paracetamol use and/or misuse.

Limitation

- Ation

Conclusion

Reference

- Obu, H. A. *et al.* (2012) 'Paracetamol use (and/or misuse) in children in Enugu, South-East, Nigeria', *BMC Pediatrics*, 12:103, pp. 1-5.

Thank you

