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CONTENTS

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ORIGINAL ARTICLES

- | | | |
|---|---|-----|
| Condom use and the risk of HIV infection: who is being protected? | M T Mbizvo, S Ray, M Bassett, W McFarland, R Machekano, D Katzenstein | 294 |
| Plasma cholesterol distribution in a rural Nigerian population – relationship to age, sex and body mass | R T Erasmus, C Uyot, T Pakeye | 299 |
| Cross sectional sero-epidemiological prevalence of poliovirus antibodies post immunization with three doses of TOPV | S A Tswana, C Berejena, SR Moyo, O Mudyarabikwa | 303 |
| Do traditional mosquito repellent plants work as mosquito larvicides? | N Lukwa | 306 |
| A preliminary investigation into psychological disorders in Mozambican refugees: prevalence and clinical features | A P Reeler | 309 |
| Acute poisoning in a paediatric intensive care unit in Harare | I Chitsike | 315 |
| Umbilical hernia in Bulawayo: some observations from a hospital based study | G Mawera, GI Muguti | 319 |

CASE REPORTS

- | | | |
|--|----------------------------|-----|
| Traveller's loiasis in Zimbabwe: a case report | LM Bordon, M Maurice | 323 |
| Symptomatic polycystic liver disease: a case | LM Bordon, L Chivete | 327 |

Acute poisoning in a paediatric intensive care unit in Harare

I CHITSIKE

SUMMARY

Forty two cases of acute poisoning were studied retrospectively over a two year period (1990 to 1991, inclusive) in the paediatric Intensive Care Unit (ICU), at Parirenyatwa Hospital in Harare. This formed 8,6 pc of the total admissions into the unit over the same period. The four commonest types of poisons were organophosphates, 38,1 pc; paraffin, 26,2 pc; traditional medicines (muti), 14,3 pc and miscellaneous drugs, such as chloroquine, aspirin, chlorpromazine, diazepam and gama-benzene, 9,5 pc. The results suggest poor living conditions, local beliefs, customs and ignorance of the dangers of chemicals, as the risk factors associated with acute poisoning.

Eighty eight pc of all admissions were children below the age of five years. The mortality rate in this series was 21 pc. Compared to the overall mortality rate of all ICU admissions of 30,9 pc over the same period, death due to acute poisoning was 1,8 pc of all ICU deaths.

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INTRODUCTION

A number of studies which reflect the pattern of poisoning in African children have been published before.¹⁻³ These studies were all based on hospital admission cases and not on patients admitted to the intensive care unit. The circumstances of poisoning in most of these cases were either accidental during the course of treatment,¹⁻⁴ or accidental around the home.¹

The types of poisons associated with hospital admission incidences in Zimbabwe have been reported before and include paraffin⁵ and other household chemicals,⁶ orthodox medicines, (therapeutic drugs),⁷ traditional medicines,²⁻³ snake venoms,⁸ insect stings,⁹ food poisoning¹⁰ and heavy metals.¹¹ Acute poisoning in children has also been studied and reported in India,¹² England¹³ and Afghanistan.¹⁴

The objective of the present study is to evaluate the pattern of poisoning seen in the paediatric intensive care unit in a developing country like Zimbabwe.

MATERIALS AND METHODS

A retrospective study of all cases of acute poisoning admitted to the paediatric ICU at Parirenyatwa Hospital over a period of two years, (1st January 1990 to 31st December 1991) was carried out. The data for this study was retrieved from a register kept in the ICU and from case notes of the patients obtained from the hospital records department. Parirenyatwa, is a teaching hospital and one of the four main referral hospitals in Zimbabwe. It is the only hospital in the country with a paediatric intensive care unit. The ICU has facilities to care for a maximum of seven patients at any one time.

RESULTS

Age and sex distribution: Over 50 pc of the patients were under the age of two years. The youngest was a three day old who was given traditional medication for ritual purposes. There was a four day old baby who was given corrosives. Eighty eight pc of the patients were below the age of five years. Eleven pc were over the age of five years. The eldest was a 10 year old who had swallowed chlorpromazine and diazepam in a suicidal bid. The age group distribution of the patients is as shown in Table I below.

Types of poisons: Table II shows types and frequency of poisons. Over 78 pc of the poisons were by

Table I: Age distribution of patients (n = 42).

| Age group (Years) | Total Number | pc Total |
|-------------------|--------------|----------|
| 0-1 | 12 | 28,6 |
| >1-2 | 10 | 23,8 |
| >2-3 | 8 | 19,0 |
| >3-4 | 3 | 7,1 |
| >4-5 | 4 | 9,5 |
| >5 | 5 | 11,9 |
| Total | 42 | 99,9 |

three agents i.e. organophosphates, paraffin and traditional medicines. Other poisoning included fish poisoning (4,8 pc), rat poison, snake bite and other corrosives contributing to 2,4 pc each as indicated. Therapeutics accounted for approximately 10 pc.

Agents associated with death: Of the total patients admitted (42) nine died (21 pc). Common agents associated with death were traditional medicine, paraffin and organophosphates. Most of the deaths 66 pc occurred within the first 24 hours of admission.

Table II: Types and frequency of poisons (n = 42).

| Type of Poison | Number (cases) | pc |
|-------------------------|----------------|-------|
| Organophosphates | 16 | 38,1 |
| Paraffin | 11 | 26,2 |
| Traditional Medicines | 6 | 14,3 |
| Fish Poisoning | 2 | 4,8 |
| Rat Poison | 1 | 2,4 |
| Snake bite | 1 | 2,4 |
| Corrosives | 1 | 2,4 |
| Chloroquine | 1 | 2,4 |
| Aspirin | 1 | 2,4 |
| Chlorpromazine/Diazepam | 1 | 2,4 |
| Gama-benzene | 1 | 2,4 |
| Total | 42 | 100,2 |

Table III: Agents associated with death.

| Type of Poison | Total Number cases | Number of deaths | pc |
|-----------------------|--------------------|------------------|-------------|
| Paraffin | 11 | 3 | 27,3 |
| Traditional Medicines | 6 | 3 | 50,0 |
| Organophosphates | 16 | 1 | 6,3 |
| Chloroquine | 1 | 1 | 100,0 |
| Corrosives | 1 | 1 | 100,0 |
| Total | 35 | 9 | 99,9 |

DISCUSSION

During the two year period, 42 patients were admitted to the ICU with acute poisoning. The total number of patients admitted to the ICU during the same period was 488. Acute poisoning accounted for 8,6 pc percent of the total ICU admissions. Of the 42 patients with acute poisoning, 27 were males and 15 females.

Hospitalisation from acute accidental poisoning in children is infrequent despite the fact that poisoning is a common occurrence. Bwibo,¹ from Uganda reported an incidence of 0,65 pc of the paediatric admissions as being due to poisoning. This is similar to the figure of 0,64 pc reported by Singh,¹² from India. Figures from more industrialised countries also show a small percentage of hospital admissions due to poisoning.¹³⁻¹⁴ Not much has been published on acute poisoning admissions into paediatric ICUs in developing countries. In this study the incidence of admission of acute poisoning in the paediatric ICU was 8,6 pc. This high figure could either be due to severity of symptom presentation or that doctors are more likely to admit children presenting with poisoning into the ICU if resources for such management are available. The age and sex distribution in the study population is similar to that reported by several workers using data from general hospital admissions.^{5,12,15}

All the cases were accidental poisoning except for two, i.e. a four day old baby who was intentionally given corrosives by a parent in a murder bid and a 10 year old child (the oldest patient), who took multiple therapeutic agents to commit suicide. It is interesting to note that this latter patient who ingested multiple drugs followed an "adult pattern" of self-poisoning as reported from Zimbabwe⁵ and Uganda and from industrialised countries such as Scandinavia¹⁵ and France.¹⁶

The three most common agents causing poisoning were identified as organophosphates, paraffin and traditional medicines. Organophosphates, the most widely used pesticides are easily available in most agricultural or hardware stores/shops where virtually anybody can purchase them. The easy availability and accessibility of organophosphates is related to the agricultural base of Zimbabwe's economy and most other developing countries. These chemicals are poisonous, even more so to the children.

The relatively high incidence of poisoning due to paraffin is associated with frequent use of paraffin which is a cheaper and affordable source of fuel in the low income bracket families such as in most high density suburbs and in the rural areas. In addition, lack of safe storage means for paraffin which is often sold in soft drink bottles/containers increases the risk of accidental ingestion by children.⁵

The common use of traditional medicines is related to socio-cultural and traditional beliefs. Almost all the adult Black Zimbabwean population have at one time or another been treated with traditional medicines.¹⁷ The belief in the efficacy of traditional medicines is invariably passed on to the succeeding generations. Traditional medicines are acceptable because there is a long history through folklore of their use and they are considered safe and effective. In addition, the use of these medicines is officially practised by the Zimbabwe National Traditional Healers Association (ZINATHA).¹⁷

Acute poisoning from orthodox medicines was recorded in only three cases i.e. 7,1 pc. On the other hand, acute poisoning admissions in the general population, due to orthodox medicines accounted for 47,8 pc of all acute poisoning admission.⁷ It seems therefore, that acute poisoning due to orthodox medicines in children below 10 years of age is uncommon.

The case fatality rate, 50 pc in the present study, was highest in acute poisoning due to traditional medicines. It is important to note that a positive history of prior "muti" administration can be obtained in a significant proportion of children admitted into hospital with various conditions e.g. gastroenteritis with metabolic acidosis, meningitis, pneumonia, etc. The severe metabolic acidosis associated with gastroenteritis in these children has been attributed to the use of "muti", hence the clinical diagnosis "muti poisoning". Nkrumah *et*

*al*¹⁸ did not find any association between "muti" and metabolic acidosis. Hence the recommendation that the clinical diagnosis "muti poisoning" which is used to categorise such children be abandoned.

However, in this study some of the children who were previously healthy had been given "muti" for ritual purposes. Other studies from Zimbabwe have shown that "muti" administration for treatment purposes does not cause poisoning.^{2,4} Therefore, more research has to be done on the pharmacological effects of "muti". In addition, the public should be educated on its potential harmful effects.

Only one patient died due to organophosphate (OP). Although there were more OP admissions compared to paraffin, there were more deaths from paraffin. This could be due to the fact that health personnel are more likely to admit poisoning cases of OP than paraffin because they are not familiar with the treatment of OP. On the other hand, health personnel are more familiar with management of paraffin poisoning. Hence only the very severe cases are admitted to ICU. This will explain the higher case fatality rate of paraffin compared to OP.

The pattern of acute poisoning in this study seems to indicate a socio-economic and cultural association. This is similar to findings of Singh *et al* from India.¹² Paraffin is widely used as a source of fuel in the less affluent communities. Use of traditional medicines is prevalent in the rural areas where orthodox medicine is not widely available. Acute poisoning due to traditional medicines is also common in urban areas,^{2,4} and this once more relates to socio-cultural and traditional beliefs which seem to pervade even urbanisation.

The present study suggests a high correlation of acute poisoning ICU admissions with socio-economic status, socio-cultural beliefs and agro-chemical economic base of the society.

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Umbilical hernia in Bulawayo: some observations from a hospital based study

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SUMMARY

We present a retrospective study of 40 consecutive patients admitted with umbilical herniae to Mpilo Central Hospital between January 1990 and December 1993. The majority of the patients 95 pc (38/40) were children and only 5 pc (2/40) were adults. The study included 18 males and 22 females giving a M:F ratio of 1:1,2. In children the age range was from 1 month to 13 years with 63 pc (24/38) occurring in the zero to five

year age group. The commonest indication for admission was obstruction of the umbilical hernia in 37,5 pc (15/40) of cases. Other indications included: large umbilical hernia 30 pc (12/40), recurrent discomfort and peri-umbilical pain 20 pc (8/40), incidental finding in patients admitted for some other problem 7,5 pc (3/40), one case of recurrent hernia and one case of accidental injury.

Spontaneous reduction of obstructed umbilical herniae occurred in 86 pc (13/15) of cases and operative reduction was carried out in 14 pc (2/15) of cases. There was no mortality recorded in this series.

It is clear from our findings in this study that obstruction of the umbilical hernia in children in our practice although relatively uncommon, is a well recognised surgical emergency. On the basis of our findings we would recommend that prophylactic umbilical hernia repair should be performed in all girls over two years of age and in all children over four years of age.

INTRODUCTION

Three forms of umbilical hernia are recognised in clinical practice.¹ The congenital variety occurs as a result of faulty union of the visceral plates in the midline. The infantile variety occurs soon after birth due to yielding of the umbilical cicatrix after separation of the cord and lastly, the adult variety occurs later in life.

Umbilical abdominal wall defects such as gastroschisis and omphalocele are thought to be developmental in origin, whereas an umbilical hernia results from severe stresses and strains against the fresh umbilical wound or weak cicatrix produced by coughing, crying, vomiting and possibly multiple pregnancies in women in later life.² As with other external abdominal wall herniae it is conceivable that other factors causing raised intra-abdominal pressure (e.g. chronic cough, constipation, ascites and distal obstructive uropathy) can predispose to umbilical hernia in later life. This study is concerned primarily with the infantile type and to a lesser extent the adult type of umbilical hernia.

Although umbilical hernia is a common clinical condition in Black African children there is very little data on this condition in the African medical literature. Indeed, no serious study on umbilical hernia has been carried out to date in Zimbabwe. It would appear from these observations that umbilical hernia is generally regarded as a harmless condition in our sub-region. It is

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