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Prescription Patterns of Analgesics in a Community Hospital in Nsukka

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Abstract
Analgesics are one of the most prescribed groups of drugs. Faulty prescription patterns in analgesics often results in aggravated side effects and drug interactions leading to serious adverse drug reactions. In this study we examined the prescribing patterns of analgesics in a typical community hospital in Nsukka, Nigeria, using patients' data forms and questionnaires. 305 prescriptions were analyzed, 97.1% of the patients were prescribed analgesics. 47.0 % and 53.0% of analgesic prescriptions in this community hospital were rational and irrational respectively. Patients with disease conditions such as hernia, gastritis, burns, Koch rule out pneumonia, eclampsia and ovarian cyst had the highest cases of irrational use of analgesic (100%). 84.4% of the patients received non narcotic analgesics while 15.6% received narcotic analgesics. 86.4% of the patients were placed on oral analgesic, 9.1 % were administered analgesics intramuscularly and 4.5% were given analgesics intravenously. Our results provided evidence that the degree of analgesic misuse by the physicians was significant (P< 0.05). Intervention methods should be chosen to improve analgesic prescription through education of the prescribers.
Key words: Analgesics, irrational, patients, prescription, rational

INTRODUCTION

Pain is the commonest symptom that takes patients to doctors in Nigeria, but the complaint does not mean that an analgesic is needed. Although drug therapy is the mainstay of pain treatment, it is not all pains that are needed to be relieved by drugs. Simple measures can be used to control some types of pain. [1].

Rahman *et al* in 2007, described pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or describe in terms of such damage. Fever and pain are usually the early symptoms of most of the inflammatory diseases. From the cradle of human civilization, man has been trying to find the way of controlling these symptoms and maintaining good health. [2]

The introduction of analgesic drugs was a landmark event and soon these drugs become the most widely used medication not only for the relief of pain and fever but also for their anti-inflammatory effect. Apart from that these pain killers are most widely used, they are the abused class of drugs worldwide. [3]

The choice of analgesic is governed by the severity of pain, the individual needs and the circumstances of the patient [4]. Analgesics are available as over the counter (OTC) products and are widely misused and abused , probably because, their uses are not always without severe adverse effects .Sporadic consumption of analgesics may relieve the symptoms of pain for a time , the actual pathology may sometimes be aggravated , complicated and even turn to fatality in some cases.[5]

Irrational drug prescription patterns consist of polypharmacy, use of drugs that are not related to diagnosis, or unnecessarily expensive , inappropriate use and irrational self medication, with many insufficient quantities consumption of drugs. [6]

The global trend from public to private sector particularly in developing countries including Nigeria results in an even larger proportion of drugs being purchased without prescription therefore; rational prescribing is therefore one important aspect of rational use of drugs. [7]

According to Goldman in 1993, the management of pain requires the management of the whole patient, rather than the irrational prescription of analgesic resulting to abuse of this important class of drugs without providing adequate relief of pain.[8]

Since irrational prescription has further complicated the problem of indiscriminate use of the analgesics and there are no adequate information regarding the prescribing pattern of analgesics by the medical prescribers, particularly with respect to their

recommend uses to counter ailments occurring in the community.

The purpose of the study was to identify the problem and provide information that can be used to improve the appropriate use of analgesics.

MATERIALS AND METHODS

The study was a prospective cross sectional (descriptive) drug utilization study in a community hospital in Nsukka, from February 2005 to May 2005.

Study design: response of patients and prescription patterns of analgesics were evaluated in plethora of disease conditions.

Patients' data forms were used for data collection. Three hundred and five data forms were filled. Patients name, age, sex, and date of admission were entered into the forms. Other data collected were the analgesic prescribed (name, frequency of dosing , route of administration, and duration of therapy), adverse effect, average number of drugs per prescription, the percentages of drugs prescribed in generic names , underlying diseases and duration of admission. Questionnaires were distributed to physicians working in the hospital. [9]

Analysis of data: data were analyzed by using percentage and Chi-square test; a $P < 0.05$ was considered statistically significant.

RESULTS

A total of 305 prescriptions prescribed to 215 females (70.6%) and 90 males (29.4%**).** The clinical indications for prescribing analgesics in this hospital were pains followed by malaria , typhoid fever, caesarean section, tumour, pneumonia, congestive heart failure, abortion, hernia, Koch rule out pneumonia, Gastritis, hypertension, cough, urinary tract infection, eclampsia, ovarian cyst, chronic renal failure, liver rupture, hepatitis, grandma seizure, peritonitis, immunosuppression, hypersensitivity, hepatitis and transient stroke (Fig.1).

Patients with disease conditions such as Koch rule out pneumonia, eclampsia, gastritis, chronic renal failure, immunosuppression, urinary tract infection and hepatitis had the highest cases of irrational use of analgesic (100%), followed by hernia (83.3%), caesarean section (81.8%), abortion (71.4%), pain (58.9%), malaria (52.5%), typhoid fever, eclampsia, ovarian cyst, cough, congestive heart failure and hypersensitivity(50.0%) while patients suffering from grandmal seizure, peritonitis, urinary tract infection, hepatitis, transient stroke, hypertension, pneumonia, tumour, typhoid fever, liver rupture, ovarian cyst, cough and congestive heart failure were administered the necessary analgesics(Fig.2).

Acetaminophen was the most frequently used analgesic (50.1%), followed by metamizole (11.1), ibuprofen (8.0%), pentazocine (6.2%), diclofenac Na (4.5%) diclofenac K (4.4%), piroxicam (4.0%) , pethidine (2.9%), tramadol (2.00%), indomethacine (1.5%) and acetylsalicylic acid (0.9%) (Fig.3).

Oral administration was the most frequent means of administration (65.3%), Followed by intramuscular injection (30.5%) and intravenous administration (4.2%) (Fig.4).

A total of 327 analgesics were prescribed, the average number of drugs per prescription in this hospital is 3.8.The prescriptions had dosage errors (39.0%), followed by polypharmacy (9.0%), only (5.0%) of these analgesics were prescribed by a generic name . The degree of analgesic misuse by the physicians was significant ($P< 0.05$) (Fig.5).

All the doctors had 3 of their prescriptions judged irrational because they would prescribe parenteral analgesic for any type of pain, administered any non –narcotic analgesic for renal failure patient and these analgesics were prescribed without hospital formulary or guideline. The chief consultant was scored to have the highest irrational analgesic prescription, since he would not consider the renal status of the patient in his choice of analgesic drug. (Table.1).

Table 1: Rational and irrational analgesic prescription by the doctors

Rank of doctors	*Years of experience (yrs)*	*Rational prescription*	*Irrational prescription*	*Total prescription*
Medical officer	4	6	3	9
Medical officer	6	6	3	9
Medical officer	4	6	3	9
Chief consultant	30	4	5	9
Medical officer	4	6	3	9
Medical officer	4	5	4	9

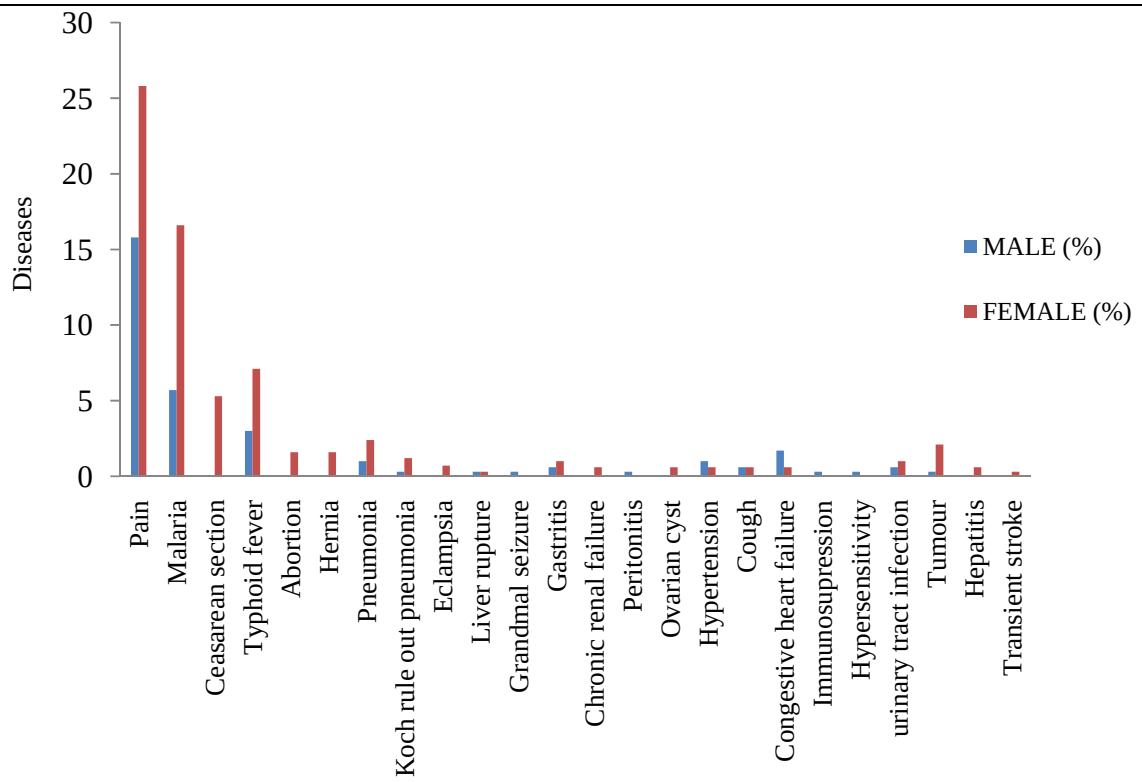

Figure1: Clinical indications of analgesic prescriptions

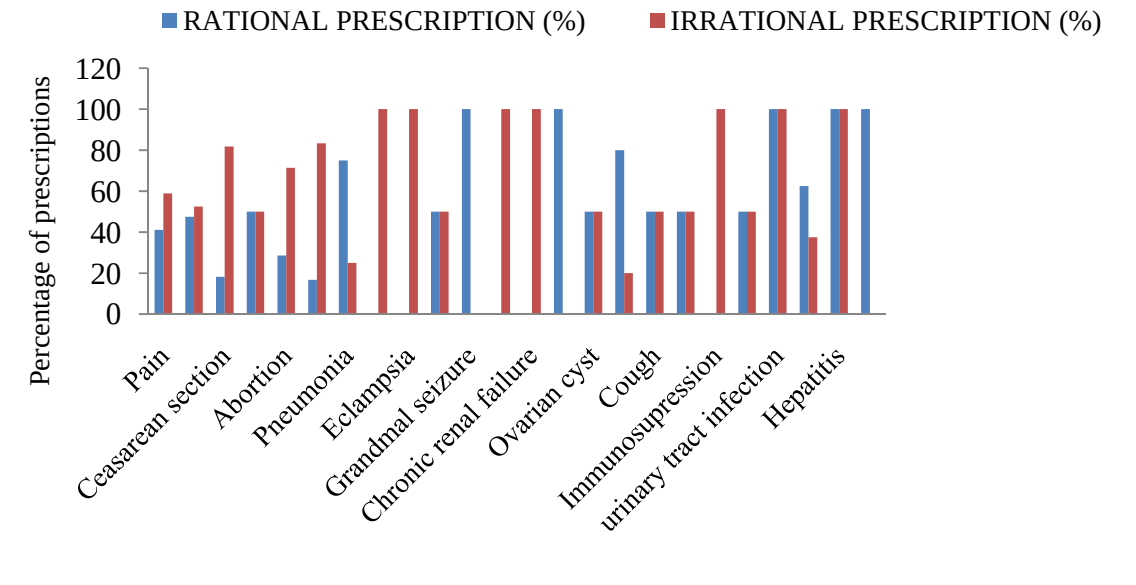

Figure2: The Percentage of rational and irrational prescriptions

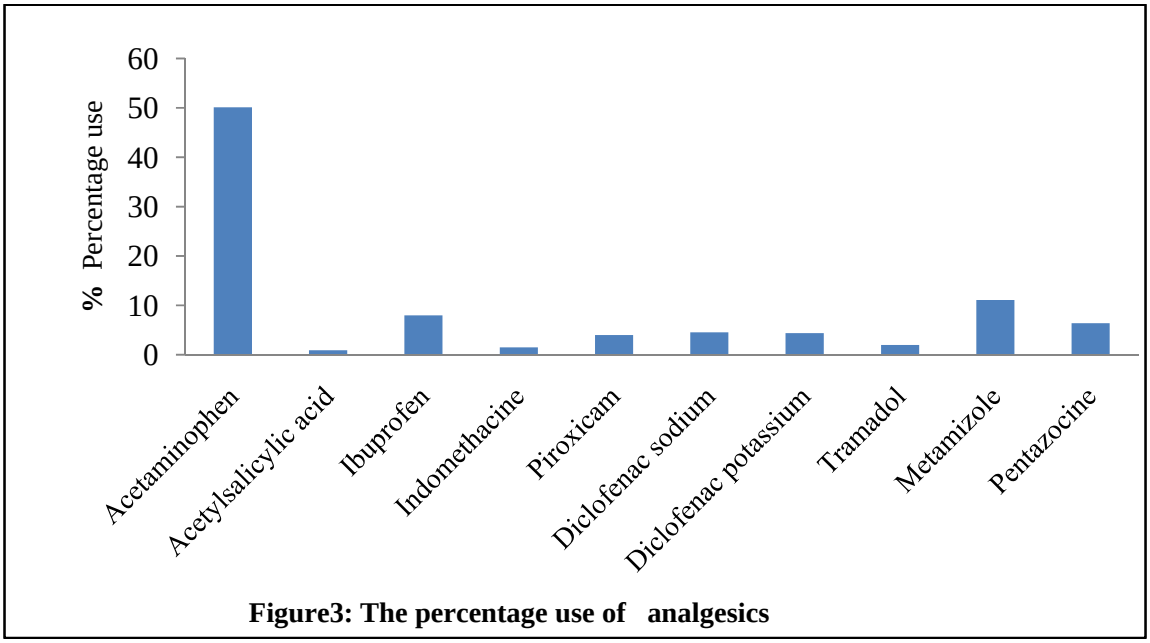

Figure3: The percentage use of analgesics

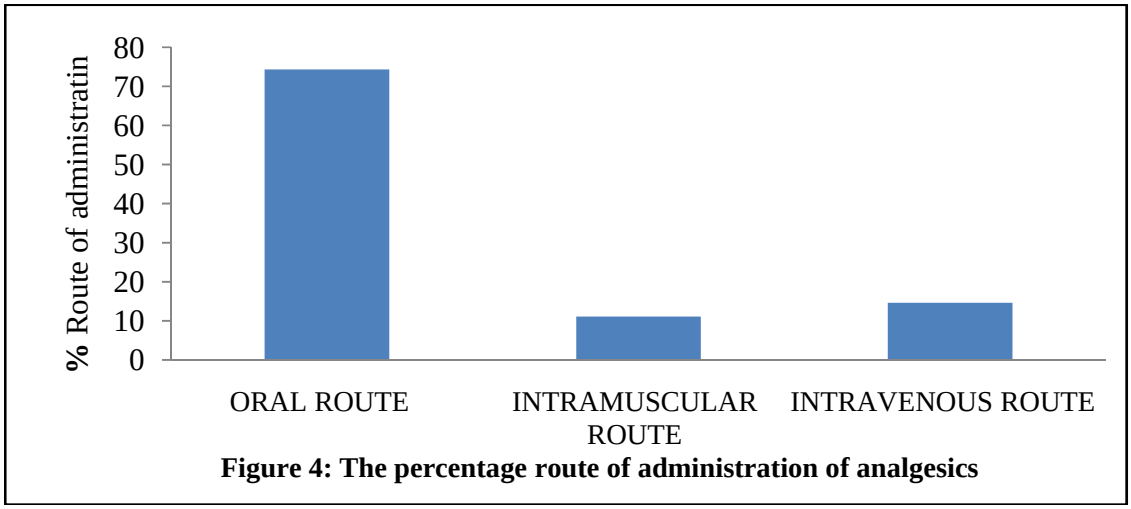

Figure 4: The percentage route of administration of analgesics

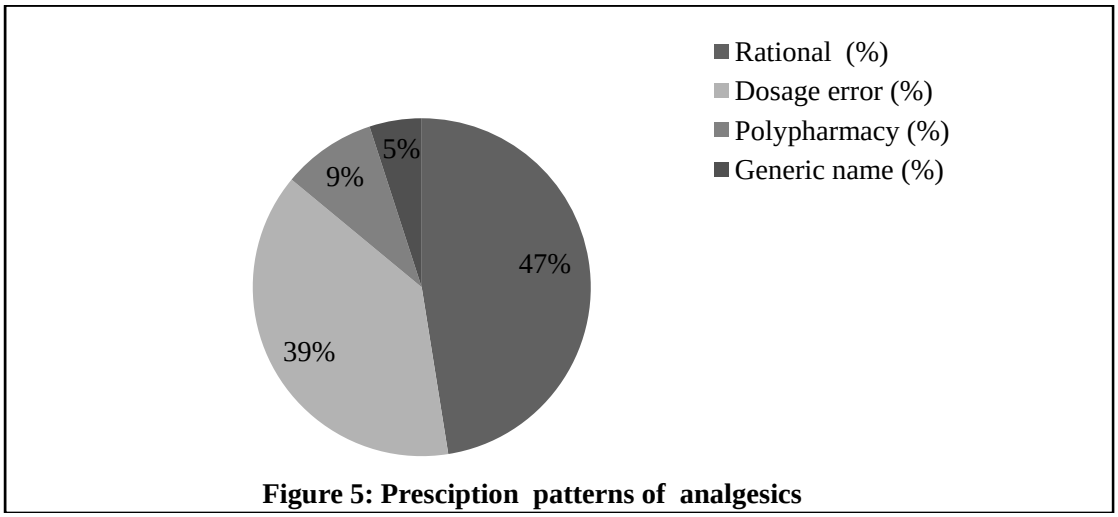

Figure 5: Presciption patterns of analgesics

DISCUSSION

Our results provided evidence that all the clinical conditions in this hospital were treated with analgesics rationally and irrationally during the period of study, which agree with the study of Vallano *et al* [10] on analgesic use in hospital setting.

Inappropriate drug prescriptions in our study, which may be due to dosage errors, poly pharmacy, unnecessarily use of expensive analgesics as reported previously by Hogerzeil in 1995 were also observed [6].

Acetaminophen was the most frequently used analgesic. The reason is not well understood but study has demonstrated that acetaminophen is the most commonly prescribed analgesic in the public hospital while the most commonly used analgesic in private hospital is NSAIDs [11].

About one third of the patients received these analgesics through injection, which demonstrates the inappropriate and use of injectable drugs and agrees with prescriptions by general practitioners in many parts of the world [12]. All the physicians prescribed parenteral analgesic for any type of pain; this does not conform to prescribing guidelines for primary care clinicians who state that injectable analgesics are rarely necessary; they should be reserved for patients with acute pain. Pharmacokinetics and clinical trials indicated that oral forms of drugs are effective as injections, with oral medications more cost effective [13, 14].

NSAIDs are often prescribed for patients with renal impairment. This might be because acetaminophen being the major metabolite of phenacetin induces renal necrosis, and extra caution is recommended when prescribing acetaminophen to patients with renal failure [15].

The physicians did not adhere to analgesic treatment guideline .A study was carried out which showed that pain prevalence was high in those with analgesic treatment that did not adhere to guidelines than those considered as having appropriate adherence to guidelines. Adherence to analgesic guideline was higher in the large hospitals than in the medium and small hospital, adherence to analgesic guideline improves the quality of prescribing, reduce cost and educate prescribers [16].

The chief consultant had the highest irrational prescription; he claimed that non narcotic analgesics are not nephrotoxic to the kidneys. Several large analytical epidemiologic studies have more recently raised concern that chronic renal failure may be linked to heavy use of not only phenacetin ,but also of a number of commonly used analgesics such as aspirin ,NSAIDs,and acetaminophen.[15]

Russel in 1994 carried out a study which showed that physicians with patterns of higher appropriateness rating were found to be younger than recently trained with fewer years of professional experience. They also had more post graduate training. [17]

The percentage of analgesic drugs prescribed in generic name was low; this result correlated with previously study on generic prescribing which was found to be low in a teaching hospital [18]. In 1993, WHO reported that Pressure from pharmaceutical companies may be one of the reasons for writing trade name, as NSAIDs are sold in the market in trade names, therefore prescribers do not have much option in this regard. [19]

CONCLUSION

This study demonstrates misuse, overuse of analgesic drugs by the community practitioners. There is need for adherence to analgesic treatment guidelines and continuing education for these physicians placing emphasis on analgesic use in renal insufficiency patients.

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