

Prescription Pattern of Anxiolytic Drugs Used in Orthopaedic Patients: A Case Study of National Orthopaedic Hospital, Enugu, Nigeria.

*¹Uzondu, Akueyinwa I. E., ²Okafor, Onyeawuna J.

¹Faculty of Pharmacy, Madonna University, Elele, Rivers State, Nigeria

²National Orthopaedic Hospital, Enugu, Nigeria.

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ABSTRACT

Most orthopaedic injuries are caused by trauma which may require several surgical interventions. Such patients experience pains that may generate anxiety disorders. Anxiolytic drugs are essential in the management of cases where anxiety and insomnia are likely to be found. This study was therefore carried out to determine the prescription pattern of these anxiolytic drugs for orthopaedic patients in comparison with other prescribed drugs. The study also set out to determine which of the anxiolytics was prescribed most. The study was done retrospectively by evaluating anxiolytics prescribed in the patients' medical folders at National Orthopaedic Hospital Enugu, Nigeria, within 2000 and 2004, using WHO Prescription Indicator Manual. F- distribution statistical tool was used to compare the anxiolytics prescribed with antibiotics, haematinics and NSAIDs that were also prescribed for these patients. Results showed that anxiolytics were prescribed along with other drugs in the management of orthopaedic cases. It was also found that in the two orthopaedic clinics for in – and out-patients, diazepam was the highest prescribed anxiolytic (61.53%), followed by bromazepam (33.6%); lorazepam, flunitrazepam and nitrazepam were rarely prescribed. Anxiolytics are relevant in the management of orthopaedic cases, diazepam being the most prescribed anxiolytic drug, Prescription pattern of anxiolytics, Orthopaedic Hospital.

Key words: Anxiolytic Drugs, Orthopaedic, Patients etc

INTRODUCTION

Drugs play a central role in our health care system and are administered to achieve therapeutic objectives. These objectives fall into one of the four categories: to cure, prevent, palliate (mitigate) or diagnose. The introduction of the WHO drug use indicators (indicator manual WHO/DAP/93.1) following the collaborative work by its Drug Action Programme (DAP-WHO) and the International Network on Rational Use of Drugs (INRUD) now provides objective indices to allow for the assessment of drug use practice [1,2]

A prescription can mean a physician's order to prepare or dispense a specific treatment usually medication for a patient [3] It is assumed that the physician's prescription order has taken into consideration, the patient evaluation and diagnosis.

The study of the prescribing patterns in public health practice, centers on adequate knowledge on the patient, physician and drug variables in drug prescribing [1, 2, 4, 5].

Statement of the problem: Most orthopaedic injuries are caused by trauma that may require several surgical interventions. Such patients experience pains, and this generates anxiety related disorders [6]. One of the researchers, having worked in trauma pharmacy for over fifteen years and seen the state of patients in agony, anxiety, insomnia, apprehension, restlessness, shock, tension and fear that they undergo when presented to the hospital for medical attention, had decided to study the

prescription pattern of anxiolytic drugs used in these conditions. It is the researchers' view that the level of usage of such drugs, determine their relevance to such patients.

Definition of orthopaedic patient: Orthopaedic can be defined as a branch of surgery which deals with the preservation and restoration of function in the musculoskeletal system particularly the joints and bones including the alleviation of pain in these structures [3, 7, 8]. A person that is regarded as an orthopaedic patient is afflicted with diseases and injuries of the trunk and limbs and may require the services of an orthopaedic surgeon. Muscles, tendons, ligaments, nerves and blood vessels ailments can be treated as orthopaedic cases [6].

Recently, there has been the development of replacement surgery in the case of hip and knee. Another development is the micro surgical techniques to repair very small blood vessels and nerves. This facilitates the transfer of living tissue (skin or bone or nerve) from one site to another and even the replantation of several parts [6, 9].

Diagnosis of orthopaedic disorders: In orthopaedic practice, diagnosis can be made by an accurate determination of all the abnormal features in the patient. This can be achieved from the patient's history, clinical examination, radiographic examination and special investigations [6, 10, 11].

1. History of the patient: A detailed history is always required. Investigation is made into activities that have

Table: 1 Number of new Orthopaedic in Patients (2000 – 2004)

Year	Total number of admissions	% women	% men
2000	879	32	68
2001	503	31	69
2002	773	29	71
2003	1506	26	78
2004	834	32	68
Total	4556(35%)	29	71

Total number of hospital patients = 13,190

Female – male ratio = approximately 1:2.5

Table: 2 Number of new Orthopaedic out-patients (2000 – 2004)

Year	Total number of admissions	% of women	% of men
2000	1744	44	56
2001	1638	49	51
2002	1097	44	56
2003	2454	47	53
2004	1702	52	48
Total	8634 (66%)	47	53

Total number of hospital patients = 13190

been found to improve the symptoms or to make them worse.

2. Clinical examination of the patient: Clinical examination is the second step that can be taken in the diagnosis of orthopaedic patients. At this stage, accuracy of observation is very important. The part complained is examined according to rigid routine.

3 .Diagnostic imaging: Radiography was the only method by which bone and other relatively dense tissues could be shown as a visual image contrasting with adjacent less dense tissues. Technological development has led to sophisticated alternative imaging.

Classification of orthopaedic disorders.

Classification of diseases or injuries is important because it allows management to be planned, prognosis determined and clinical outcomes compared both within and between centers (6, 7). Most of the orthopaedic disorders fall within the six major broad groups: injuries, deformities, affections of the bone, affections of the soft tissue, affections of joints and neurological disorders.

1. Injuries: In orthopaedic practice, injuries can encompass both soft tissue and bony tissue. Bone fracture is the most predominant injuries encountered in orthopaedic cases. Accidents are major contributors to injuries, chronic morbidity and mortality. Injuries are second only to acute infections as the principal cause of morbidity. They are also important cause of chronic handicap [6, 12].

2. Fracture: The integrity of the overlying soft tissue is of great importance in classifying or describing fracture rather than the bone itself. A fracture can be complete or in- complete. Complete fracture can usually result in displacement [7, 12].

There are two classes of fractures:

- Open (compound) fracture
- Closed (simple) fracture.

An open fracture is said to communicate directly with outside environment while the reverse is the case with closed fracture. Infection is a major risk factor in open

fracture [12]. In closed fracture, infection is not a risk factor, as the wound is not exposed to outside environment. Management of orthopaedic patient: The patient that is admitted on emergency is first stabilized [6, 7]. Treatment of orthopaedic patients varies with type and degree of orthopaedic case. The mode of treatment is also based on age of the patients.

There are three parameters that are used such as:

- Surgical intervention
- Physical therapy
- Pharmacological therapy

In treating an orthopaedic patient, it may involve the combination of two or three of the parameters [12, 13].

Surgical Intervention: It involves carrying out surgery on the patient to correct the underlying orthopaedic problem. Such surgery includes: internal fixation, arthroplasty, excision of tumour, osteotomy and close open wound.

Internal fixation: Involves fixing fragments of bones internally with nails and screws. This operation is widely used to correct fractures.

In arthroplasty, operation is performed to displace or totally change joint bones with artificial, joints. It is this type of operation that is done in hip region.

Bone tumour or soft tissue tumour is excised and removed (in excision of tumour).

In osteotomy, the operation is done to achieve a reduction of bone or amputation. It is mostly used in limbs.

The purpose of closure of open wound is to clean wound by debridement and suturing, for healing to take place.

Part of the patient body is placed under local deep heat by short wave diathermy. It is usually accompanied with exercise to strengthen the muscle and to preserve mobility. Local radiotherapy is applied occasionally for a particular painful area. This treatment is used cautiously because of the possible delayed induction of leukemia.

In splint (plaster or traction), the part of the body of the patient is rested in a splint or plaster for three to four

Table 3: Various drugs prescribed for orthopaedic patients (2000-2004)

Drugs	Orthopaedic In-patients	Orthopaedic Out-Patients
MNDPP	4.08±0.3	3.44±0.69
Antibiotics	25.33±5.08	14.32±4.95
NSAIDs	24.18±7.84	28.4±7.07
Haematinics	29.72±3.93	41.35±11.11
Anxiolytics	12.62±4.47	7.73±2.21
OD	8.14±3.01	8.21±3.29
Injectables	13.59±6.51	3.97±2.32
Generics	45±18.93	48.71±17.48
EDL	98.21±1.75	96.52±6.11
Number of Prescriptions	2762	2250

MNDPP is mean number of drugs per prescription. NSAID is non-steroidal anti-inflammatory drug. OD is other drugs. EDL is Essential Drugs List.

months in the first instance, depending on severity and progress. Subsequent management depends on the response to treatment and the state of the joint or part of the body at the end of the immobilization. During this period manipulative correction and gradual correction by prolonged traction is achieved [11].

Pharmacological therapy: This procedure involves prescription of drugs to the orthopaedic patient for the ailment. The drug can be adjuvant or main therapy in treating the patients. There are many classes of drugs prescribed for orthopaedic patients. These depend on the nature or type of orthopaedic case.

These classes of drugs are as follows:

- Analgesics
- Potent anti-inflammatory drugs
- Anti-cancer (Cytotoxic)
- Hormonal drugs
- Anxiolytics (sedatives)

Analgesics: This can be subdivided into non-narcotic and narcotic analgesics.

Non-narcotic analgesics

These include acetylsalicylic acid, other salicylates, acetaminophen, non-steroidal anti-inflammatory drugs (NSAID's), disease modifying antirheumatic drugs (DMARDs), selective cyclo-oxygenase (cox)-2 inhibitors and tumour-necrosis factor (TNF) inhibitors. They have modulated perception of pain caused by receptive stimulation from the periphery [14]. Hematologically, some non-narcotic analgesics inhibit platelet aggregation, through reversible inhibition of prostaglandin synthetase. Gastrointestinal ulceration can occur. In patients using NSAIDs, oral coagulant is contraindicated as this can cause bleeding. Salicylate containing NSAIDs enhances methotrexate toxicity.

Narcotic analgesics: Opioids are in this group, they are controlled drugs. The endogenous opioids exert their action of pain relief through endogenous peptides such as dynorphins, enkephalins and endorphins. The exogenous opioids exert their effect by acting as agonists or antagonists to opioid receptors. They may act through partial agonist actions [14, 15]. Opioids can be given orally, rectally or parenterally. The morphine-like effect of narcotic analgesic includes physical dependence, respiratory depression, sedation, analgesic, miosis,

euphoria and bradycardia. They are used in orthopaedic practice in the management of moderate to severe pain.

They have anticholinergic effects, causing dry mouth and urinary retention.

Potent anti-inflammatory drugs (corticosteroids): It has been stated that the use of this class of drug may be justified in about 20 percent of patients who have steadily worsening disease unrelieved by simpler measures. Hydrocortisone is given intra-articularly at intervals. The drug can enhance risk of infection, risk of accelerating a degenerative reaction and a short duration of relief.

Antibiotics: In orthopaedic cases such as osteomyelitis, antibiotics are the main stay in the treatment. The primary treatment is parenteral antibiotics that penetrate bone and joint cavities. Nafcillin is penicillinase resistant synthetic penicillin. It is usually administered with third generation cephalosporin.

Nafcillin can cause thrombophlebitis, and because of this, short term (1-2 days) parenteral administration in elderly patients is advised; then changes route as clinically indicated.

The drug interacts with warfarin, tetracycline derivatives and aminoglycosides [16, 17]. Generally, in orthopaedic practice antibiotics are given as prophylaxis to patients with open fracture [6, 7].

Anticancer drugs: Cancer of the bone presents in the form of benign or malignant type. Cytotoxic drugs are given to such patients. In some cases, cytotoxic drugs may be combined with radiotherapy or surgery. Such drugs cause serious side effects and a balance has to be struck between likely benefit and acceptable toxicity. They are used single or in combination. Drug combinations are frequently more toxic than single drug, but may have the advantage, in certain tumours, of enhancing response, reduced resistance and increased survival.

Cyclophosphamide is widely used in the treatment of chronic lymphocytic leukemia, the lymphomas, and solid tumours. The drug should not be given to patients that had previous pelvic irradiation because of urothelial toxicity. The effect of the warfarin and suxamethonium are enhanced by cyclophosphamide. The drug can cause haemorrhagic cystitis, hyperuricaemia, alopecia and bone marrow suppression [14]. Hormonal drugs: Stilboesterol in an example of hormonal drug given to orthopaedic patients that suffer from osteoporosis; as

Table: 4. % anxiolytics prescribed for orthopaedic in-patients according to hospital days of admission.

Days	2000	2001	2002	2003	2004	Mean
7	60.18	51.95	71.13	57.47	80.83	64.31±23.15
14	7.09	15.85	6.30	9.05	0.82	7.82±10.86
21	11.13	8.75	4.51	9.48	2.55	7.28±7.20
28	21.57	23.42	18.11	24	15.82	20.58±7.04

they are liable to bone fracture in osteoporosis, there is decrease in bone density. This drug is used in combination with surgery in orthopaedic patient with fracture [6]. It has additive effect with corticosteroids. It can cause sodium retention with oedema, thromboembolism and cardiovascular disease.

Anxiolytics (sedatives): Anxiolytics can be defined as a drug used in alleviating anxiety and anxiety related problems (18) Trauma patients with painful injuries usually experience significant anxiety [6, 19]. Anxiolytics allow a smaller analgesic dose to achieve the same effect [19]. The use of anxiolytic medication for elbow dislocation is beneficial in the acute setting when the reduction of the dislocation is to take place. Using both anxiolytic and a pain relieving medication is ideal for a conscious sedation to facilitate reduction. Anxiolytics allow for relaxation and mild sedation when attempting reduction of a dislocated elbow or limb and any painful medical procedure to be conducted on the patient [19, 20].

Classification of anxiolytic drugs: These can be classified based on the chemical structures. Such major classes include:

- The barbiturates such as Phenobarbital, butobarbital
- Propanediol (carbonates) e.g. meprobamate
- Benzodiazepine compounds
- Miscellaneous sedative hypnotic drugs e.g. paraldehyde and chloral hydrate.

Benzodiazepines: The benzodiazepines can be divided into four sub-groups based on their half-life.

- Ultra short acting with half-life less than 90 minutes.
- Short acting: half-life is less than 6 hours, e.g. triazolam
- Intermediate ones with half-life 6 – 24 hours, e.g. temazepam and estazolam.
- Long acting such as diazepam, bromazepam, lorazepam, flunitrazepam and nitrazepam, with half-life greater than 24 hours.

Factors that affect prescription pattern

Patient variable

In prescription of drugs, a lot of patients variables are considered by physicians. These variables include the socio-economic status of the patient, the age of the patient, sex and severity of the disease and associated diseases.

Socio-economic status: It has been shown that physicians with a relatively high proportion of higher-income patients

prescribe newer and often more expensive drugs whereas physicians with a relatively high proportion of lower-income patients are considerably less likely to be frequent prescribers of new drugs [1].

Sex of the patient: It is an important consideration because some drugs might affect the sexual functions of different genders. An instance is methyldopa that causes impotence in men. It is not advisable to be prescribed for male patients that are sexually active. Some drugs might affect the uterus of female reproductive system, and therefore should not be given to women in their reproductive years.

Age of patient: Some drugs have different effects on patients in different age brackets. They might affect some functions in the patients. Drugs that have sedative effects are preferable in older patients since they might have insomnia. Drugs that affect reproductive functions will not be advisable for patients in their reproductive years.

Physiological status of the patient: This is an important factor in drug prescription. Pregnancy is a physiological state that determines drugs that should be administered to patient. As some medications might be foetotoxic or teratogenic, they can cause abortion, low birth weight and still birth.

Severity of disease and associated disease: This determines to a great extent, drugs that are prescribed. The medications prescribed should be drugs that can prevent or slow progression of disease and prevent complications. Also the presence of other disease states in an individual is an important consideration before a drug is prescribed.

Physician variables: These are variables that come into play as a result of the physicians' knowledge, education and experience. These sometimes propel physicians to make choices of drugs to prescribe [1].

Experience and habit in using certain drugs: Among the factors that are considered for drug prescription, the experience in using it plays an important part, both with perception on various medicines, and their choice.

Drug variables: These factors are usually the characteristics inherent in the medication that make them preferable for different disease states. These factors include the efficacy, side effects, ease of compliance, availability of drug and cost of medicine [1].

Organizational influences: These have been elucidated to influence physician prescribing pattern. These

Table 5: % total prescription of diazepam, bromazepam, lorazepam, flunitrazepam and nitrazepam in orthopaedic patients (2000-2004)

Anxiolytics	Orthopaedic In-patients	Orthopaedic out-patients
Diazepam	70.36±10.64	53.88±14.54
Bromazepam	23.63±7.71	41.81±11.64
Lorazepam	2.96±1.90	2.60±1.33
Flunitrazepam	1.78±1.17	1.11±1.91
Nitrazepam	1.27±1.56	0.85±1.63

organizational influences include the effect of office sharing, hospital affiliation and participation in welfare programmes like National Health Insurance Scheme (NHIS)

Efficacy and side effects: Generally, drugs that have high efficacy are prescribed first by physicians. Side effects determine also the choice of medication. The greater the side effects and degree of occurrence, the lower the chances of prescribing such drug.

Availability of drug: Physicians would not want to prescribe drugs that patients will not have access to as this defeats the essence of the whole exercise.

Ease of compliance: Doctors prefer medicines that need a low frequency of administration as this facilitates precise follow up of the treatment by the patient.

Cost of medicine: One of the deciding factors in prescribing drugs is the price, as the patients access to various treatments is conditioned by the cost.

OBJECTIVES OF THE STUDY

Anxiolytics were investigated retrospectively to ascertain their significance in the management of the orthopaedic patients at National Orthopaedic Hospital, Enugu, Nigeria. The aims of the research were:

- To evaluate the prescription pattern of anxiolytics in comparison with some other classes of drugs.
- To determine the relevance of anxiolytic agents using diazepam, bromazepam, lorazepam, flunitrazepam, and nitrazepam in the management of orthopaedic cases.
- To determine the most prescribed anxiolytics in the management of orthopaedic patients.
- To determine the sex that is affected most in orthopaedic cases.

The research intended to use prescribing indicators to evaluate and determine the relevance of anxiolytics in the management of orthopaedic patients [1]. It is the view of the researchers that the degree of prescription of such drugs suggests the benefits of their usage in such patients. Most orthopaedic cases are occasioned by trauma [6, 12]. It is noted that in such orthopaedic patients, anxiety is observed due to the trauma. This fact prompted this research carried out to ascertain prescription pattern of anxiolytic drugs.

Brief description of area of study: National Orthopaedic Hospital, Enugu is situated in the capital city of Enugu State, in the South Eastern part of Nigeria. It is a tertiary hospital established to take care of orthopaedic and burn (plastic) patients. The hospital has five clinics, nine wards, with two hundred and twenty beds and four theatres. It has on the average 23,300 patients' attendance each year.

MATERIALS AND METHODS

Materials: Patients' folders, from which medical records of the hospital were assessed, were used. The patients were classified as in – patients and out – patients. Prescriptions were also used.

Methods: 13,190 orthopaedic patients' medical histories within a period of 5 year period (2000-2004), were assessed retrospectively through medical record of the hospital. The patients' records assessed were those that

reported to the hospital as new patients. Those admitted were classified as in- patients while others were out-patients. The patients were grouped into 2 units of orthopaedic in- patients and orthopaedic out- patients.

In the out-patients, the prescriptions surveyed included 3 on each patient while in- the patients, all the prescriptions were assessed. This depended on the time of discharge but not later than 28 days of hospitalization.

Prescriptions were studied through modified WHO guidelines on drug prescription evaluation [1]. The drugs prescribed for the various cases of orthopaedic patients were determined. The various data on anxiolytics prescribed for such patients were also determined by examining 5012 prescriptions within the period of study. Each prescription was treated noting the number of different drugs prescribed and categorizing them into antibiotics, NSAID's, haematinics, anxiolytics and other drugs. The numbers of different drugs in the prescriptions were added to get the cumulative or total number of different drugs prescribed for the patients studied (retrospectively) in each clinic. The percentage of a particular drug prescribed was then calculated.

In orthopaedic in- patients, all the drugs prescribed within the period of hospitalization of not more than 28 days were evaluated. The same procedure was carried out in orthopaedic out-patients with all the drugs prescribed for such patients in their first visits to the hospital noted. The demographic elements of age and sex of the patients were recorded. The route of administration of anxiolytics, duration and frequency of doses were considered. The patients studied ranged from 12-89 years with mean age of 30 years. There were 5410 females (41%), and 7780 males (59%) in the study. Their medical files were selected through stratified random sampling. Dressing material, medical appliances were not considered as drugs in the prescriptions studied. Patients below 12 years of age and patients who did not respond to resuscitation and expired in the hospital were not included in this study. Inclusion criteria were all the drugs prescribed and were classified into five groups as antibiotics, NSAID's, haematinics, anxiolytics and other drugs.

The setting was National Orthopaedic Hospital, Enugu where 13190, new patients of orthopaedic cases, attended the hospital within the period of study for medical care. The total patients comprise both in - and out- patients. Usually, most in-patients of orthopaedic cases later turned out to be out-patients after hospitalization as their ailment can now be managed in out-patient department.

One to one discussions were held with some hospital pharmacists, doctors and nurses to find out whether anxiolytics were useful to orthopaedic patients or not.. Date of the drugs prescribed for the patients studied were entered and analyzed using statistical percentages, mean values and standard deviation and F-distribution. The anxiolytics evaluated were diazepam, bromazepam, lorazepam, flunitrazepam and nitrazepam.

RESULTS AND DISCUSSION

General patients' profile

Table: 6. Analysis of variance of % prescription of anxiolytics in comparison with antibiotics, NSAIDs and haematinics in orthopaedic in-patients (F-distribution).

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (Df)	Mean Squares (MS)
Between Groups	SSB = 799.35	K - 1=3	MSB = 266.45
Within Groups	SSW = 121.61	K(r.1) =16	MSW = 7.60
Total	SST=920.99		computed F=35.06

$= F_{0.05} (3, 16) = 3.24$, K=number of columns, r=number of rows

Tables 1 & 2 below show overall new orthopaedic patients' attendance to the hospital for medical treatment within the 5 year- period of study. A total number of 13,190 patients attended the hospital, 4,556 patients were orthopaedic in-patients, and about 29% were females while 71% were males (Table1). The orthopaedic in-patients that were admitted within the period of study were 35%.

In orthopaedic out-patients, 8635 sought for medical attention, and 47% of them were females while 53% were males (Table2). The patients that attended the clinic were 44%.

The patients' flow within the period showed that the number that attended the orthopaedic out-patients clinic was higher than that of in-patients (Tables 1 and 2) but the differences were not significant, $P > 0.05$. Generally, males appeared to suffer more (in this study) from orthopaedic cases than females probably because of the nature of their jobs: more traumatic.

Discussion with hospital pharmacists, doctors and nurses: The pharmacists affirmed that they encountered anxiolytics in the prescriptions of the patients, and that most drugs they dispensed were generics even when branded drugs were prescribed for the patients, as the hospital hardly stocked branded drugs. Only drugs registered with NAFDAC (National Agency for Food and Drug Administration and Control) are stocked in National Orthopaedic Hospital, Enugu. This accounted for EDL compliance (97%) of all the drugs prescribed in the hospital within the period of study

All the clinical personnel discussed with, agreed that it is difficult to manage such patients without anxiolytic drugs especially the in-patients as over 90% of them were given diazepam as premedication before surgery. They equally confirmed that patients reacting to ketamine which is the major anaesthetic need in the hospital are usually given anxiolytics to alleviate hallucination (side effect) of the drug. Orthopaedic patients that exhibited anxiety- related problems because of their pains were equally prescribed such drugs but on short term bases (1-5 days).

In Table 3, mean number of drugs per prescription for orthopaedic patients was $4.08 \pm 0.3\%$; for orthopaedic in-patients, 3.44 ± 0.69 and for orthopaedic out-patients, 3.63 ± 0.50 (Table 3).

In orthopaedic in-patients 2762 drug prescriptions were evaluated and categorized into antibiotic which represented $25.33 \pm 5.08\%$ of the drugs prescribed, NSAIDs: $24.18 \pm 7.84\%$, haematinics: $29.72 \pm 3.93\%$, anxiolytics: $12.62 \pm 4.47\%$, and other drugs $8.14 \pm 3.01\%$. On the average, the drugs prescribed as injectables

constituted about $13.59 \pm 6.51\%$. About $45 \pm 18.93\%$ of the drugs prescribed were generics. This implied that about 55% of all the drugs prescribed were branded; and about $98.21 \pm 1.75\%$ of the drugs prescribed in this clinic were in the EDL (Table 3).

In orthopaedic out-patients, 2250 prescriptions were evaluated. Prescription of haematinics was 41.35%, NSAID's: 28.4%, antibiotics: 14.32%, other drugs: 8.12% and anxiolytics 7.73% . It was observed that the percentage prescription of antibiotics and anxiolytics were higher in orthopaedic in-patients than in out-patients (Table 3) though the differences were not significant $P > 0.05$. This probably might be as a result of prescription of more antibiotics as prophylaxis and therapy for patients that underwent surgery; similarly more anxiolytics were prescribed as premedication as most in-patients went for surgery [21]

In orthopaedic out-patients clinic, the number of haematinics (41.35%) and NSAID's (28.4%) prescribed were higher than in the in-patients. The total percentage of injectable drugs prescribed in the unit was $3.97 \pm 2.32\%$. $48.71 \pm 17.48\%$ of the drugs prescribed were generics, $96.52 \pm 6.11\%$ were in EDL (Table 3).

In summary, Table 3 showed the prescription profile of various drugs within the period of study in orthopaedic patients. In orthopaedic in-patients, the percentage prescription of drugs followed a descending order: haematinics > antibiotics > NSAID's > anxiolytics and other drugs; similar pattern of prescription was noted in orthopaedic out-patients except that NSAIDs were more frequently used than antibiotics implying that in-patients cases were more serious and more prone to infections.

Table 4 shows the percentage frequency of anxiolytics prescribed for orthopaedic in-patients according to hospital days of admission within the period of study. 64.31% of the anxiolytics was prescribed within 7 days of admission while only 20.58% of the drugs were prescribed within the 4th week. The high percentage prescription of anxiolytics within the first week of admission showed that orthopaedic patients needed such drugs for stabilization in terms of anxiety, shock, restlessness and surgery [21, 22, 23]. This equally suggested that prescription of anxiolytics was short term [24].

In table 5, the percentage prescription of various anxiolytics in orthopaedic in-patients studied was as follows; diazepam $70.36 \pm 10.64\%$; bromazepam $23.63 \pm 7.71\%$; lorazepam $2.96 \pm 1.90\%$; flunitrazepam $1.78 \pm 1.17\%$ and nitrazepam $1.27 \pm 1.56\%$. In orthopaedic

Table7: Analysis of variance of % prescription of anxiolytics in comparison with antibiotics, NSAIDs and haematinics in orthopaedic out-patients (F-distribution).

Source of Variation	Sum of squares (SS)	Degrees of Freedom (df)	Mean Squares (MS)
Between Groups	SSB=5069.25	K	MSB=1689.75
Within Groups	SSW = 33395.89	K(r.1) = 16	MSW = 212.24
Total	SST=1673.38		Computed F=7.96

= $F_{0.05}(3,16) = 3.24$, K =number of columns, r =number of rows

out-patients, the percentage prescription of diazepam was $53.88 \pm 14.54\%$, followed by bromazepam $41.81 \pm 11.64\%$, lorazepam $2.60 \pm 1.33\%$, flunitrazepam 1.11 ± 1.91 , nitrazepam $0.85 \pm 1.63\%$.

It was observed that diazepam was the principal anxiolytics prescribed, as it had the highest percentage of prescription in all the two clinics, followed by bromazepam, lorazepam, flunitrazepam and nitrazepam. This might be as a result of better accessibility, cheapness, convenience and better skeletal muscle relaxant ability [14]. Tables 6 and 7 show the sum of statistical verification using F-distribution of the percentage prescriptions of anxiolytics, antibiotics, NSAID's and haematinics. The analysis showed that the anxiolytics prescribed had beneficial effect on orthopaedic patients. The benefits could be as a result of insomnia and anxiety alleviation, decrease in the gastro-intestinal disturbance suffered by traumatic patients especially in orthopaedic patients; pain tolerance or as premedication in surgery [21, 22, 23].

From this study, anxiolytics prescribed from 2000-2004 had wide coverage of the orthopaedic in- patients and moderate coverage of orthopaedic out- patients depicting the more serious nature of orthopaedic in-patient cases. This underscores the importance of anxiolytics in this class of patients especially in patients who went for surgery [21, 25, 26, 27]. 64.31% of anxiolytics prescribed for orthopaedic in-patients were done within 7days of admission. Of this number 70.36% was diazepam, 50.97% were injectables. 30.67% orthopaedic out-patients had anxiolytics prescribed for them. In all the two clinics, lorazepam, flunitrazepam and nitrazepam were rarely prescribed, as they had minimal percentage prescription.

Studies done by [28 and 29] showed that about 19% anxiolytics were prescribed for orthopaedic patients for back and joint pains, strains, headache, urticaria and rash, migraines and insomnia which were in consonance with the findings of this study. Chronic regional pain syndrome may occur following orthopaedic injuries which can lead to anxiety in such class of patients [21]. This was why the prescription of anxiolytics in orthopaedic patients was prominent in the pattern of drugs prescribed for such patients. Anxiolytics allow a smaller analgesic dose to achieve the same effect, as pain control is essential to quality patient care; they ensure patient comfort and have sedating properties which are beneficial to patients who experience pain. Anxiolytics in the management of orthopaedic patients may be an important component of a multimodal or balanced approach to holistic treatment of such patients [19, 21]. Some patients may benefit from antidepressants, anxiolytics and antipsychotics to address

anxiety and psychiatric symptoms that frequently accompany pain [19] and this study supported this claim.

The prescribed anxiolytics can help this class of patients to relieve anxiety, transient insomnia and muscular disorders in some specific neuromuscular disorders. Acute pain is one of the most common adverse stimuli experienced by orthopaedic patients occurring as a result of injury, illness and necessary medical procedures. It is associated with increased anxiety, avoidance, somatic symptoms [19, 20, 30]. Optimal pain control may be obtained with intervention ranging from deep sedation to anaesthesia. The use of anxiolytics or sedatives makes patient less able to communicate distress especially in painful medical procedures.

CONCLUSION

Finally, the relevance of anxiolytics especially diazepam has been established in this study. In comparison with antibiotics, haematinics and NSAIDs, anxiolytics have contributed immensely in the management of orthopaedic patients.

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