Prevalence of use of Pain relievers in a Hospital in Bayelsa State, South- South of Nigeria

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Abstract

The use of pain relievers to lower pains, inflammation and temperature is a frequent practice all over the world. The study evaluated the most prescribed pain reliever in Amassoma General Hospital in Bayelsa State, South- South of Nigeria. A retrospective study was designed to evaluate the use of Non -Steroidal Anti-inflammatory Drugs [NSAIDs]. Patient medical case notes were extracted. The target population comprises of both sexes and age 9-75. Sample size of 300 patient case notes were collected unbiased. About 60%, 57% and 61% in 2014 - 2016 respectively were females. About 47% of patient in 2014 falls within the age group of 20-29 years.

At 2015, 46% of patients were within the age group of 20-29 years while in 2016 36% falls within the same age bracket. An average number of analgesics prescribed per prescription from 2014 to 2016 was 1.30 with a P value of 0.980.In 2014, 76% used paracetamol as pain relievers, 2015, 77% used paracetamol as pain relievers and in 2016, 76% used paracetamol as pain relievers. About 27% and 13% respectively used diclofenac and ibuprofen in 2014. 26% and 7% respectively used diclofenac and ibuprofen in 2015 and 31% and 9% respectively used diclofenace and ibuprofen in 2016. The prescriptions contain mostly analgesic, antimalarial, antibacterial and multivitamin. Also oral route were the most prescribed. Health professionals should be encouraged to use other routes of drug administration for patients with acute and chronic pains that need fast relieve of pains.

Keywords: Amassoma; Hospital; Pain relievers and Health Professionals

Introduction

The use of pain relievers to lower temperature is a frequent practice in Community and Hospitals all over the world. Pain relievers are house hold drugs and prescription is not required for majority of them Paul et al. [1]. Acetaminophens have been reported to be the most frequently prescribed pain relievers. Acetaminophen is a weak inhibitor of the synthesis of prostaglandins. It also reduces prostaglandin concentration and do not suppress the inflammatory processes. Hence they do not exhibit anti-inflammatory properties Graham & Scott [2]. This resulted in prescriber combining it with Non-steroidal anti-inflammatory drugs (NSAIDs). NSAIDs have analgesic, inflammatory and antipyretic effects. However, the uses of NSAID are associated with a range of serious adverse effects such as cardiovascular, gastrointestinal, renal complications and hypersensitivity reactions Andrea et al. [3]. The risk of an individual patient with NSAIDs-related adverse event is relatively low, but the frequent use of NSAIDs within the community will exposed them to potential complications. In using pain relievers, the following must be considered by the health care provider Nice [4], Day et al. [5]. Prescribe with caution, even for short periods of time Low and effective dose should be prescribe for the shortest possible time, and continue use at each consultation should be re-evaluated.

For older patients with increased cardiovascular risk, patients with type 2 diabetes, and patients with reduced renal function or a history of renal problems are at increased risk of NSAID-related complications and should be advised about adverse effects of NSAIDs and therapeutic monitory to identify drug therapy problem should be investigated. Recommended dose of Naproxen is (up to 1000 mg per day) and ibuprofen is (up to 1200 mg per day) as first-line choices for adults for patients with cardiovascular risk. Ibuprofen is the most appropriate NSAID for children. Long-acting formulations of NSAIDs should be avoided, where possible, as these are associated with an increased risk of gastrointestinal adverse effects. Mechanism of NSAIDs, patient's age and the condition being treated should also be looked at before prescribing NSAIDs Massó González et al. [6], Derry et al. [7]. From the array of studies enumerated above we evaluated the most prescribed pain reliever in Amossoma General Hospital in Bayelsa State, South- South of Nigeria.

Methods

Materials Used

Patient medical case notes were extracted from General Hospital, Amassoma, Bayelsa State.

Study Setting

General Hospital, Amassoma, Bayelsa State is located in Southern Ijaw Local Government Area of Bayelsa State, Nigeria. Amassoma is the only Secondary Hospital in the community owned by the state government.

Research Design

A retrospective study designed to evaluate the use of Non -Steroidal Anti-inflammatory Drugs [NSAIDs] and their indications used in General Hospital, Amassoma, and Bayelsa State.

Target Population

The target population comprises of both sexes and age 9-75. Sample size of 300 patient case notes were collected unbiased. The population of Amassoma is about 36, 454 people according to the result of 2006 National census [8].

Data Collection

Following ethical approval from the Head of Clinical Services in General Hospital, Amassoma, Bayelsa State. A total of 300 prescriptions were selected using a systematic random sampling method, 100 from each year in review (2014 to 2016). Parameters extracted from the patient medication profile include, demographic data, diagnosis and the type of NSAID prescribed. All data were extracted from the Records Department.

Data Analysis Techniques

The study result was analyzed using Statistical Package for Social Science [IBM 'SPSS' Statistics] version 20 for windows and Microsoft excel. Analyzed data are patient's demographics data, diagnosis and the type of NSAID prescribed.

Results

Demography

Table 1: Patient Demographic Data in General Hospital, Amassoma.

Variable	2014	2015	2016	Total
N	100 (%)	100(%)	100(%)	300(%)
Age group				
10-19	24 (24.0)	21 (21.0)	33 (33.0)	78 (26.0)
20-29	47 (47.0)	46 (46.0)	36 (36.0)	129 (43.0)
30-39	11 (11.0)	16 (16.0)	17 (17.0)	44 (14.7)
40-49	8 (8.0)	8 (8.0)	5 (5.0)	21 (7.0)
50-59	6 (6.0)	4 (4.0)	4 (4.0)	14 (4.7)
60 and above	4 (4.0)	5 (5.0)	5 (5.0)	14 (4.7)
Sex				
Male	40 (40.0)	43 (43.0)	39 (39.0)	122 (40.7)
Female	60 (60.0)	57 (57.0)	61 (61.0)	178 (59.3)
Occupation				
Civil servant	11 (11.0)	10 (10.0)	7 (7.0)	28 (28.0)
Private employee	5 (5.0)	5 (5.0)	6 (6.0)	16 (5.3)
No information	84 (84.0)	85 (85.0)	87 (87.0)	256 (85.3)
Marital status				
Single	71 (71.0)	67 (67.0)	69 (69.0)	207 (69.0)
Married	28 (28.0)	32 (32.0)	30 (30.0)	90 (30.0)
Divorced	0 (0.0)	0 (0.0)	1 (1.0)	1 (0.3)
Widow(er)	1 (1.0)	1 (1.0)	0 (0.0)	2 (.07)
Indication				
Musculoskeletal pain	13 (13.0)	10 (10.0)	12 (12.0)	35 (11.7)
Dislocation	0 (0.0)	0 (0.0)	1 (1.0)	1 (0.3)
Laceration	6 (6.0)	11 (11.0)	2 (2.0)	19 (6.3)
Puncture wound	10 (10.0)	9 (9.0)	9 (9.0)	28 (9.3)
Other conditions	71 (71.0)	70 (70.0)	76 (76.0)	217 (72.3)

About 60%, 57% and 61% in 2014 - 2016 respectively were females. About 47% of patient in 2014 falls within the age group of 20-29 years. At 2015, 46% of patients were within the age group of 20-29 years while in 2016 36% falls within the same age bracket. Regarding marriage status 71%, 67% and 69% within 2014-2016 respectively were single (Table 1).

Comparison of Average number of Drugs Prescribed

Table 2: Comparison of Average number of Drugs Prescribed per Prescription.

Year	Number of prescription	Mean ± sd	Statistics
2014	100	4.57±1.44	
2015	100	4.59±1.46	F(2,297)=0.021; p=0.980
2016	100	4.55±1,27	

Average number of drugs prescribed per prescription from 2014 to 2016 = 4.58. Average number of analgesics prescribed per prescription from 2014 to 2016 = 1.30 with a p value of 0.980 (Table 2).

Occurrences of analgesic types in reviewed prescriptions from 2014 to 2016

In 2014, 76% used paracetamol as pain relievers, 2015, 77% used paracetamol as pain relievers and in 2016, 76% used paracetamol as pain relievers. About 27% and 13% respectively used diclofenac and ibuprofen in 2014. 26% and 7% respectively used diclofenac and ibuprofen in 2015 and 31% and 9%

respectively used diclofenace and ibuprofen in 2016 (Figure 1).
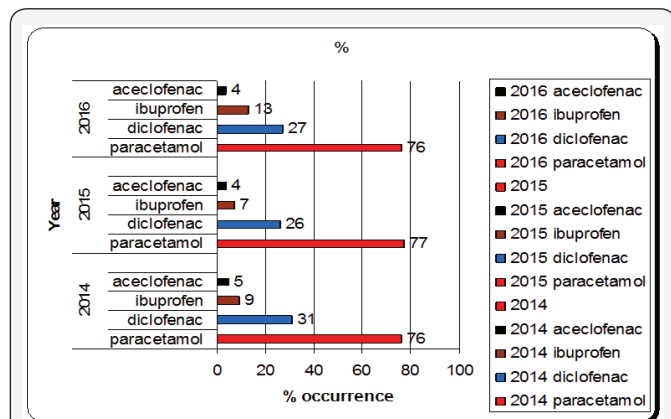

Figure 1: Pictorial representation of the types of analgesics prescribed for the various indications from 2014 to 2016. Occurrences of analgesic types in reviewed prescriptions from 2014 to 2016.

Prescriptions with Occurrence of Drug Categories

Table 3: Number of Prescriptions with Occurrence of Drug Categories.

Drug category	2014	2015	2016
Analgesics	100 (100.0)	100 (100.0)	100 (100.0)
Antibacterial	63 (63.0)	59 (59.0)	66 (66.0)
Antimalarials	47 (47.0)	54 (54.0)	38 (38.0)
Multivitamin supplements	68 (68.0)	65 (65.0)	70 (70.0)
Others	50 (50.0)	55 (55.0)	53 (53.0)

In 2014, 100% of analgesic occurred in all prescriptions, 63% of antibacterial, 47% of antimalarial and 68% of multivitamins. In 2015, 100% of analgesic occurred in all prescriptions, 59% of antibacterial, 54% of antimalarial and 65% of multivitamins. In 2016, 100% of analgesic occurred in all prescriptions, 66% of antibacterial, 38% of antimalarial and 70% of multivitamins (Table 3).
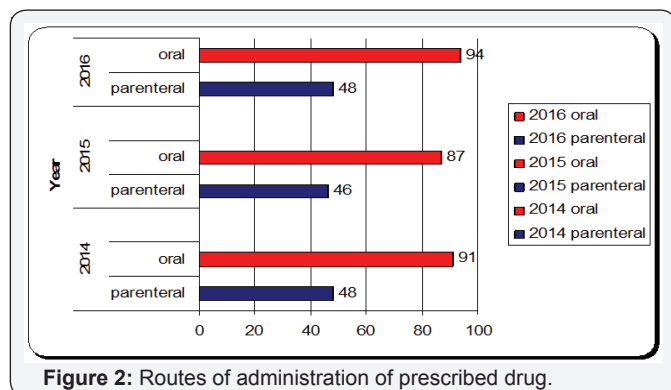

Figure 2: Routes of administration of prescribed drug.

Regarding the route of administration for prescribed drugs, 94% were oral routes in 2014. 87% of prescribed drugs were oral routes in 2015 while in 2016, 91% of prescribed drugs were oral routes. For the three year reviewed parenteral routes took the lower stage of 48%, 46% and 48% respectively (Figure 2).

Discussion

Demography

The study revealed that of the three years more female patient visited the Hospital within the age group of 20-29 years. Majority of the patients were married.

Comparison of Average number of Drugs Prescribed

Average number of analgesics prescribed per prescription from 2014 to 2016 is 1.30 with P value of 0.980. This indicates that there is no statistical correlation with analgesic prescribed.

Occurrences of analgesic types in reviewed prescriptions from 2014 to 2016

The study revealed that acetaminophen was the most prescribed within the three years. The increased prescription of acetaminophen may be connected with the easy accessibility, accessibility, affordability, effectiveness in pain relieving and it safety profile recorded by producers and health care providers Forget et al. [9]. However, the use of acetaminophen beyond the recommended dose can result to toxicity. It has excellent anti-pyretic activity, moderate analgesic with no anti-inflammatory property it acts by inhibiting prostaglandin synthesis by its action on cyclo-oxygenase-3 enzyme. It is prescribed and administer at 0.5-1 g in adult (maximum of 4 g/day) and 10-15 mg/kg every 4-6 hours in children. It is use for the symptomatic relief of fever, mild musculoskeletal pain, headache, migraine Ahmed et al. [10], Tasneem et al. [11], Siegmeth et al. [12].

The study further revealed that ibuprofen and diclofenac respectively seconded acetaminophen on frequency of use. Both NSAIDs are strong analgesic with anti inflammatory and antipyretic effect. A lot of studies have reported on the effectiveness in pain management of the two NSAIDs. Although, their use did not prevent their effect on the GIT, kidney, liver and cardiovascular system. The remedy to the aforementioned set back of NSAIDs is the use of low dose for a short period of time and patient age and diseases state should be put into consideration before prescribing NSAIDs Verena et al. [13], Jacqui [14].

Prescriptions with Occurrence of Drug Categories

For the three years the patient's folders revealed that analgesic, antibacterial antimalarial and multivitamin were frequently prescribed by the Health professionals. This is expected because the prevalence of malaria, typhoid, urinary tract infection, pelvic inflammatory diseases and respiratory tract infection is on the increase mostly in this region and Africa at large. The above disease states are accompanying pain and the use of analgesic is inevitable. The high prevalence of malaria and typhoid are linked to the poor standing of living. Also frequent use of multivitamin is due to the poor standard of living hence, multivitamins are used as a compensatory mechanism to support the body for supplement for proper functioning of the cells; since there is no adequate dieting Chijioke et al. [15], Nmadu et al. [16], Olasehinde et al. [17], Beatrice et al. [18].

Routes of administration of prescribed drug

The study revealed that oral route was the most prescribed. It is the most convenient, cheapest and safest route of drug administration. Although, it has set backs such as requires cooperation with other molecules to absorbed, dissolved and disintegrate. Some drugs may be inactivated by the gut environment. Absorption is mostly by passive diffusion in the gut. Lipophilic drugs are the most easily absorbed. Slow release medication may delay therapeutic response and it may not be the most preferred for children. Small intestine villi just have 200 m2 areas for absorption. Any factor which accelerates gastric emptying will accelerate rate of absorption because the stomach will absorb very little of any drug. Laurence et al. [19], Ajibola [20].

Conclusion

The study revealed that more female participated in the study. The prescriptions contain analgesic, antimalarial, antibacterial and multivitamins. Acetaminophen was reported to be the most prescribed medications and they were given by oral route. Ibuprofen and diclofenac were second in line as most prescribed pain relievers but was given via oral route. Other route of drug administration should be encouraged for patient with acute and chronic pains that need fast relieve of pains.

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