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ORIGINAL ARTICLE

Determination of the prevalence of clinical signs of Aspirin and NSAID poisoning in patients referring to Ahvaz Razi Hospital

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Abstract

Introduction: Nonsteroidal anti-inflammatory drugs (NSAIDs) are a family of drugs that are among the most commonly prescribed drugs worldwide. Due to the ease of access and widespread use of these drugs, many cases of intentional and accidental poisoning of these compounds have been reported.
The aim of this study was to determine the prevalence of the clinical signs of drug toxicity with aspirin and NSAIDs in patients referred to Razi Hospital in Ahwaz.
Methods: In this study, patients suffering from aspirin and NSAIDs poisoning referred to Razi Hospital during 2013-2015 were included in the study. Information reviewed from their stored records includes clinical presentation, demographic information, reference data, and treatment options.
Results: In this study, 79.5% were female respondents and 20.5% were male, and Faye and Kramer coefficients confirmed the existence of a strongly separate relationship between the gender variable and the first clinical signs of poisoning. The results showed that Diclofenac with 27% had the highest toxicity and nausea was the most common symptom in all drug toxicity with aspirin and NSAIDs. Nausea is a common symptom of poisoning with these drugs. There was a significant relationship between laboratory changes with the type of drug and the need for ICU admission, and this relationship was not strong due to the index values.
Conclusion: According to the results, most of the patients were aged between 14-24 years old. Nausea was the most common symptom in all drug toxicity with aspirin and NSAIDs.

Keywords: Clinical Manifestations, Aspirin, NSAIDs, Poisoning, Ahvaz Razi Hospital.

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INTRODUCTION

Nonsteroidal anti-inflammatory drugs (NSAIDs) are a family of drugs that are among the most commonly prescribed drugs worldwide. Therefore, NSAIDs are at the top of the list of causes of drug-induced liver injury [1]. These drugs are often recommended for postoperative pain. NSAIDs impair the autoregulation of renal perfusion by adversely vasodilation of the renal vasculature mediated by prostaglandins. In children, NSAIDs can target renal blood flow and induce renal ischemia by reducing renal perfusion or cardiac output [2]. NSAIDs are associated with many side effects, including renal toxicity, gastrointestinal (GI) or cardiovascular (CV) events, and increased blood pressure [3]. The use of NSAIDs and aspirin, especially in high-risk patients, has been associated with upper gastrointestinal injury [4]. Some NSAIDs, for example benoxaprofen, ibuprofen and bromfenac, are not used because of hepatotoxicity. Also, others such as nimesulide were never made available to patients in several countries and were withdrawn in some others. [1]. Major risk factors for upper gastrointestinal clinical events include previous history of upper gastrointestinal events, older age, high or multiple dose use of NSAIDs, corticosteroids, or anticoagulants. [5]. Age over 50 years may be one of the important risk factors in drug-induced liver damage [6]. In 30 to 50% of NSAID users, lesions are found in the antrum, which are often without clinical manifestations (such as ulcers and subepithelial bleeding). In general, these lesions are not clinically significant and disappear even with chronic use, because the mucosa is compatible with aggression [7, 8]. The most consistent effect of NSAIDs is to increase renal sodium reabsorption as a result of inhibition of cyclooxygenase (mainly COX-2), which predisposes to hypertension and edema [9].

These drugs can provoke bleeding or perforation of the lower intestine in patients and may also aggravate colitis [10]. The non-digestive side effects of this drug group include the consequences of salt and water retention, bronchospasm stimulation, renal failure, and hypersensitivity reactions [11].

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Adverse effects of diclofenac are seen in almost all NSAIDs [12]. Neurological features, following ibuprofen overdose, occurred in patients ranging from drowsiness to coma [13]. Epidemiological studies have shown that low and short-term doses of ibuprofen have fewer side effects than other NSAIDs. When using ibuprofen, the incidence of side effects increases with increasing the dose, so the safety of ibuprofen is dose-dependent [14]. Indomethacin use usually causes neurological symptoms (such as dizziness and headache), and rare cases of psychotic and depressive symptoms have also been seen. Because of the structural similarities between indomethacin and serotonin, adverse CNS effects may be caused by indomethacin's effect on central neurons via the serotonin pathway or COX inhibition [15].

Because of the high prevalence of aspirin and NSAIDs use and the serious complications for poisoned patients, the awareness of the prevalence of clinical symptoms can help plan for treatment and diagnosis [16]. In gastrointestinal poisoning caused by NSAIDs, simultaneous administration of H2 receptor antagonists, prostaglandin analogs or proton pump inhibitors is necessary [17]. Misoprostol reduces ulcers and digestive problems caused by these drugs, but is rarely used because of side effects. The use of proton pump inhibitors reduces the formation of ulcers and the complications of NSAID-related ulcers [18]. The spectrum of hepatotoxicity associated with NSAIDs continues to expand [6]. The aim of this study was to identify the clinical signs of drug toxicity with aspirin and NSAIDs in patients referred to Razi Hospital in Ahwaz during 2011-2014.

METHODS

In this descriptive cross sectional study, medical records of the patients were reviewed to check the diagnosis of clinical signs of drug toxicity with Aspirin and NSAIDs in 107 patients referred to Razi Hospital in Ahwaz during 2011-2014. All necessary licenses and approval of the ethical committee of Jundishapur University of Medical Sciences in Ahvaz were obtained by the program administrators before the beginning of the study. In this study, information such as age, sex, type of drug, the amount of drug, the onset of clinical symptoms, hospitalization time, first clinical symptom, need for dialysis and laboratory changes, need for ICU and duration of admission was extracted from medical records of Razi hospital of Ahvaz and entered into special forms. After studying the cases, a questionnaire was built based on the determined variables and was completed by the available data of the cases. Then, the data were analyzed with SPSS software using descriptive statistics and Chi-square.

Statistical analysis

The sample size was determined using the formula (Daniel, 2005). Then the results were analyzed by using SPSS software (descriptive statistical methods and by using chi-square statistical test). Then relations between variables were compared (the level of significance were considered equal and less than 0.05).

RESULTS

In this study, 107 cases of NSAID poisoning were referred to Razi Hospital in Ahvaz. There were 20.5% (22) male and 79.5% (85) female. The age ranges were 14-24 years (49.5%), 25-34 years (33.6%), 35-44 years (9.3%), 45-54 years (0.9%), 55-64 years (5.6%), and above 65 years (0.9%). The first clinical symptoms appeared in 72% of patients less than 6 hours, in 26% between 6-24 hours and in 2% of patients more than 24 hours. The first symptoms included nausea 63% (67 patients), drowsiness 12% (13 patients), vomiting 11% (12 patients), vertigo 9.3% (10 patients), cramp 2.7% (3 patients) and headache 0.9% (1 patients) (Table 1). 45.79% of patients (49 patients) admitted in the ICU. Duration of hospitalization was24-48 hours in 49.55% (53 patients), 48-72 hours in 37.45% (40 patients) and more than 72 hours in 13% (14 patients). Laboratory results had changed in 10.2% (11 patients). Among all studied patients, 29.9% had taken diclofenac, 22.43% aspirin, 22.1% ibuprofen, 12.14% naproxen, 3.8% mefenamic acid and 2.8% had taken indomethacin (Fig 1). 10.2% (11 patients) were suffering from kidney disease, 4.67% (5 patients) from heart disease, 2.8% (3 patients) from neurologic disease and 1.86% (2 patients) from musculoskeletal disorders.

The relation between the first clinical signs of aspirin and NSAIDs poisoning and the type of drug was significant with the p-value of 0.02. the two variables are not independent of each other. Therefore, there was a relation between the first clinical signs and type of drug (Table 1).

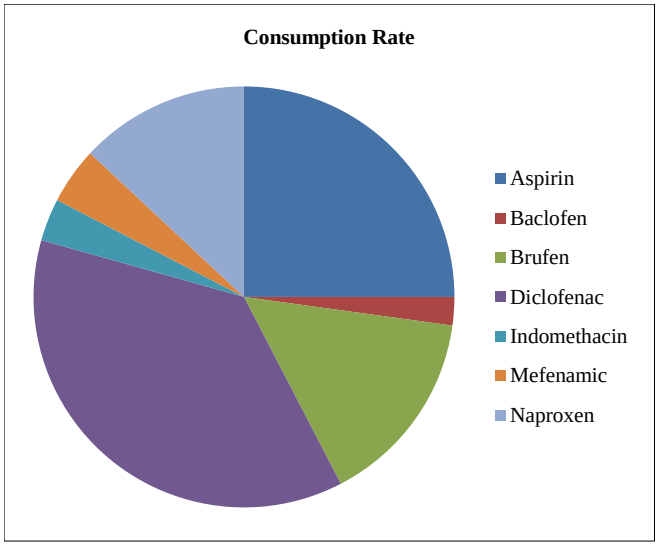

Figure 1. Consumption rate of NSAID poisoning

DISCUSSION

In a study conducted by Kingswell RS (1981) confusion, drowsiness, nystagmus, diplopia, blurred vision, tinnitus and headache have been reported following poisoning with NSAIDs [19]. Also other study by Smolinske SC (1990) et al. reported that epigastric discomfort, vomiting, and nausea are the most common and prominent symptoms in acute NSAID overdose. [20]. The first symptom of most cases in our study was nausea (63%) and drowsiness at second place (14%),

Table1. The relation between the first clinical signs of aspirin and NSAID poisoning.

Type of drug	First clinical signs						Total
	Nausea	Vomiting	Cramp	Drowsiness	Headache	Vertigo	
Aspirin	19	2	1	0	0	2	24
Baclofen	1	0	0	1	0	0	2
Ibuprofen	18	3	0	3	1	4	29
Diclofenac	19	4	0	6	1	2	32
Indomethacin	1	0	1	0	0	1	3
Mefenamic acid	3	0	0	1	0	0	4
Naproxen	6	3	1	2	0	1	13
Total	67	12	3	13	2	10	107

followed by vomiting, vertigo, cramp and headache, respectively. Nausea is a common symptom of poisoning with these drugs. The studies did not show a correlation between the type of symptom and the onset of symptoms, although in 46% of cases, nausea was reported in less than 6 hours. In a study of Hall et al. of 126 patients with overdose of ibuprofen, 19% of patients showed symptoms of mild digestive disorders including diarrhea, nausea, vomiting and abdominal pain.In this study, NSAIDs-associated clinical signs typically occurred in younger patients who had ingested NSAIDs more than the recommended dose. Considering the highest incidence of this poisoning in youth and adolescents, it can be said that issues such as puberty and interest in independence, drug use tendency, and inability to communicate with others are the reasons for the vulnerability of this age group. In a study of the relationship between age and acute drug poisoning, poisoning with these drugs was higher among women than men, which is consistent with the findings of the present study [21]. In our study 20.5% of patients were male and 79.5% were female. These findings suggest that the incidence of NSAIDs poisoning is related to gender. In 53 patients, the duration of hospitalization was 24-48 hours. Also in 72% of patients, time lag to onset of symptoms was less than 6 hours. 49.55% (53 patients) were admitted to the hospital for 24-48 hours and 13% were hospitalized for more than 72 hours. In the study of Shokrzadeh et al., on drug poisoning in Gorgan, nearly half of the patients (197 patients, 44.6%) were hospitalized between 24 and 72 hours, which is close to the findings of the present study [22]. The results of this study showed the relationship between laboratory changes and hospitalization time, the first clinical symptoms and gender, the amount of drug and laboratory changes, the type and amount of drug and hospitalization, laboratory changes and the onset of clinical signs, type of drug and the need for admission to the ICU, the type of medication and the onset of clinical symptoms, the first clinical symptoms and gender, the amount of drug and hospitalization time, the age of the patients and the gender, the age of the patients and the onset of clinical symptoms, the age and the need for admission ICU, duration of hospitalization and gender in ICU, drug value and first clinical symptoms, did not exist. Also, there was the relationship between the first clinical symptoms and sex, between the amount of drug and the onset of clinical symptoms, the need for admission to the ICU and the onset of the first clinical symptoms, the age and duration of admission, the first clinical symptoms and type of drug, laboratory changes and hospitalization time, the need for admission to ICU and gender, the length of hospitalization and the need for admission to the ICU. However, there was no similar study in this area for comparison.

CONCLUSION

Referral to Razi Ahvaz Hospital is common after NSAID overdose. Most patients are asymptomatic or have only minor self-limiting symptoms, a small number of patients may have major clinical effects including somnolence, nausea, vomiting and metabolic acidosis leading to coma. It is important to identify and initiate prompt supportive care in these individuals. However, serious complications such as convulsions, cardiovascular collapse, acute renal failure, coma and respiratory depression may complicate overdoses.

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