Awareness and frequency of potential side effects on nonsteroidal anti–inflammatory drugs among the Jordanian patient population

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ABSTRACT

Objective: To investigate patient awareness of the proper use and frequency of side effects in nonsteroidal anti-inflammatory drugs (NSAIDs) users in Jordan.

Methods: This study was a prospective 8 question interview of subjects purchasing medications, during randomized 4 hour/day pharmacy visits over a one month study period (March 2002). Two hundred and twelve patients were included in this study. Two community pharmacies located in Irbid were chosen. The other 2 were Albashir Hospital Pharmacy and Prince Basma Hospital pharmacy.

Results: Overall NSAIDs use during last year was 69%: Diclofenac was the most used NSAID. The majority of patients (58%) reported having side effects upon NSAIDs-use; gastrointestinal upset was the most frequently reported side effect. Patients' awareness regarding proper NSAIDs use was poor, and pharmacist role in counseling was inadequate. However, user ability to discover the most common side effect to the drug seemed not to be affected.

Conclusion: Nonsteroidal anti-inflammatory drugs use awareness and knowledge of probable serious side effects and how to handle them was not adequate. This probably reflected on high incidence of side effects. Nonsteroidal anti-inflammatory drugs are available on prescription as well as over the counter drugs. Pharmacist involvement in education of patients using them is highly recommended and much needed to help decrease frequency of side effects.

Saudi Med J 2004; Vol. 25 (7): 907-911

The annual use of nonsteroidal anti-inflammatory drugs (NSAIDs) accounts for over 22,000,000 prescriptions in the United Kingdom and over 70,000,000 in the United States of America. These figures underestimate their full use as aspirin and other NSAIDs are available as over the counter drugs as well.[1] No official published figures are available regarding the annual use of NSAIDs in Jordan or other arab countries. Nonsteroidal anti-inflammatory drugs are used primarily to manage different pain conditions, less commonly they are used for their antipyretic effect. Although generally well tolerated, conventional NSAIDs have been associated with a wide range of adverse effects. The most common of which is gastrointestinal tract (GIT) side effect like dyspepsia, abdominal pain, heartburn, and the most serious life–threatening gastrointestinal (GI) ulceration.[2-10] Other NSAIDs associated side effects include: edema and increase of blood pressure, renal toxicity, asthma exacerbation, aseptic meningitis, and allergic reactions.[11-17] These side effects can seriously limit NSAIDs utility, and cause patients to stop taking these medications, switch to another

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Received 23rd December 2003. Accepted for publication in final form 1st March 2004.

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NSAIDs, or begin concomitant medication to treat these symptoms.[18-20] Patients awareness regarding proper NSAIDs use, their proper indications, potential side effects and what to do regarding them are key factors in improving NSAIDs effectiveness, and decreasing incidence of side effects. Only little information is available with regards to jordanian patients use of NSAIDs and the role of health care personnel in patients'counseling. The objective of this study is to assess the frequency of NSAIDs use among jordanian patients, patients' NSAIDs preferences, awareness, and incidence of NSAIDs side effects, and to evaluate the possible pharmacists' role, if any, in NSAIDs selection and counseling.

Methods. We carried out this research by interviewing purchasers of medicines from pharmacies, during a one month period (March 2002). Four pharmacies were chosen; 2 community pharmacies and 2 major outpatient hospital pharmacies (Albasheer Hospital, Amman, and Prince Basma Hospital, Irbid). These pharmacies are located in areas with different socioeconomic backgrounds. Randomized 4 hour visits to these pharmacies were made by 2-trained clinical pharmacist. Interviews with subjects were carried out in a private place in the pharmacy area after approval of the subject to participate in the study. A special form (**Appendix 1**) designed to collect necessary information was filled during the interview. Show and tell technique was used for patients unsure regarding the type or medications or dosage forms they were using. Data analysis was based on calculating the average and frequencies for the different factors associated with the NSAIDs use. Subjects using high dose of NSAIDs for management of chronic diseases (patients using NSAIDs for the management of established chronic diseases like chronic osteoarthritis, rheumatoid arthritis, cystic fibrosis or any other chronic condition requiring continuous use of high dose of NSAIDs) were not included in the study. Patients using low dose aspirin for its antiplatelet effect were also not included in the study. All available types of NSAIDs were included in the study. For patients using more than one kind of NSAIDs during the last year, the last used NSAID was adopted for analysis.

Results. Two hundred and twelve patients consenting to be interviewed were included in this study. One hundred and forty six patients (69%) have used at least one type of NSAID during the last year. Diclofenac was the most used with 49% of subjects preferring oral dosage form (another 12% were using diclofenac suppositories), less subjects used oral dosage forms of the following: Ibuprofen (26%), Indomethacin (6%), and 7% used other types

Table 1 - Indications for different nonsteroidal anti-inflammatory drugs used presented according to occurrence of side effects and route of drug administration.

Type of NSAID (route of administration Patients using this type n (%)	Number of patients having gastrointestinal side effect out of all patients using it for the stated indication
Diclofenac (oral) 72 (49)	Musculoskeletal aches including back pain and mild arthritis pain (24/45) Alleviation of pelvic and menstrual pain (1/8) Toothache, headache, migraines (5/9) Miscellaneous forms of acute pain* (4/10)
Diclofenac (rectal) 17 (12)*	Musculoskeletal aches including back pain and mild arthritis pain (15/16)
Ibuprofen (oral) 38 (26)	Musculoskeletal aches including back pain and mild arthritis pain (12/23) Alleviation of pelvic and menstrual pain (3/9) Toothache, headache, migraines (0/2) Miscellaneous forms of acute pain (1/4)

* one patient used suppositories dosage form for management of headache and did have gastrointestinal irritation

Table 2 - Occurrence of side effects in the 212 subjects included in the study, in relation to patients' specific variables.

Variable	Total n of patients	Patients having GIT side effects n (%)
NSAIDs user	146	74 (51)
Never used NSAIDs	66	0 (0)
Sex		
Female	100	53 (53)
Male	46	21 (46)
Age range (years)		
18-29	23	6 (26)
30-49	71	34 (48)
50 and above	65	35 (54)
Peptic ulcer history		
No ulcer history	112	15 (13)
Ulcer history	34	34 (100)
Level of education		
Illiterate	27	10 (37)
1-12**	102	43 (42)
College education	23	21 (91)

* side effect defined as gastrointestinal upset, irritation, pain or ulceration due to nonsteroidal anti-inflammatory drugs intake
** number of years at school
GIT - gastrointestinal
NSAIDs - nonsteroidal anti-inflammatory drugs

(naproxen, meloxicam, acetylsalicylic acid). The preferred route of administration of NSAIDs used by patients was in the following order: oral route 74%, rectal 17%, injection 9%. The reasons behind NSAIDs preference were based on patients' previous use upon physician advice. Reasons/indications for using NSAIDs were mostly musculoskeletal aches including back pain and mild arthritis pain (58% of users). Alleviation of pelvic and menstrual pain accounted for 14% of NSAIDs use. Nonsteroidal anti-inflammatory drugs were also used for other mild pain conditions (15%), like: toothache, headache, migraines, and (13%) other forms of acute pain. None of the subjects reported using NSAIDs for their antipyretic effect. **Table 1** shows the indications for use for the most frequently used NSAIDs types, and dosage forms as they relate to incidence of side effects. "Who is doing the counseling in NSAIDs users?"The majority of NSAIDs users (61%) stated that doctors counseled them when they used the drug for the first time. Upon getting NSAIDs from pharmacies only 16% of users received counseling from a pharmacist, 9% received their counseling from other sources (neighbor, friend, leaflet), and 14% did not receive any counseling. Counseled patients were asked: "What information did they know regarding their medications."Results were as follow: 94% know that all forms of oral NSAIDs should be taken with food, 35% know that NSAIDs can cause GIT upset, 22% know that NSAIDs can cause GIT ulcerations, and only 11% know that NSAIDs can adversely affect kidneys function. Other information regarding: how to use, potential hazards on other systems like edema and increase of blood pressure, asthma exacerbation, aseptic meningitis, and allergic reactions, and what to do if they happen were not recalled. More than half of NSAIDs users had side effects (67%); the most common side effect was GIT upset with an incidence of 48%. Other reported side effects included GIT ulceration (3%), edema and uncontrolled blood pressure (4%), asthma like symptoms (1%) and renal impairment (0.1%). Other side effects due to NSAIDs use were not reported. **Table 2** shows the frequency of NSAIDs associated GIT side effects, together with the incidence of NSAIDs use, by a number of variables. Traditional NSAIDs increase the risk of clinically important gastrointestinal disorders, over all; it appears that (51%) of patients taking NSAIDs experience GIT side effect, which ranges from dyspepsia, heartburn, flatulence, and sore stomach to ulceration. All patients with a previous history of gastric or duodenal ulcer manifested gastric upset.

Discussion. In Jordan NSAIDs are commonly used. The prevalence of NSAIDs use during last year was 69%, since this percentage does not include the use of aspirin for its antiplatelet effect, nor does it include patients using NSAIDs for management of chronic diseases, the previous percentage might represent an under rather than an over estimation of the actual use of NSAIDs. Most types of NSAIDs are available in Jordan including the new class of COX2; these drugs are available in the hospital as well as community pharmacies. Health care in Jordan covers from 60-80% of the population. And most kinds of NSAIDs including some of the new class of COX2 are actually available through insurance. It is thought that individual response to NSAIDs could be variable,[21] and therefore, patients will not have similar preference to NSAIDs. In our case jordanian patients', preferred drug is Diclofenac. Several factors might explain this preference including: relatively low price, availability of different dosage forms, and availability of sustained release tablets that can be given once daily. The most favorite NSAIDs dosage forms were oral tablets and capsules. Suppositories and injections were relatively not acceptable forms for patients and physicians, and patients who were using these formulations indicated that they did not like them, but they used them as they have been recommended by their doctors to decrease the risk of GIT side effects. Nonsteroidal anti-inflammatory drugs can provide symptomatic relief for back, osteoarthritis, menstrual, and other kinds of pain.[22-24] Although NSAIDs GIT side effects are widely known studies into the exact frequency are limited. In a study from Australia Kolarz et al[24] reported 18.1% incidence of GIT side effects in patients using prescription NSAIDs, despite the fact that one third of patients in the study were actually using effective GI-protection proton pump inhibitors, misoprostol and famotidine in (high dose). The percentage of patients having GIT side effect in our study was 51% which is higher than the Australian figure mostly as none of the patients in our study was using effective GI-protection, besides poor knowledge on how to properly use and monitor NSAIDs. Nonsteroidal anti-inflammatory drugs have local as well as systemic toxicity. The systemic side effects of NSAIDs explain why enteric coating, giving inactive prodrugs, and nonoral (parenteral, rectal) administration only slightly reduce the risk of GI damage.[25,26] Proposed strategy for reducing GI toxicity (local and systemic) is to counter the effects of NSAIDs with another agent like H2 blockers, proton-pump inhibitors and prostaglandin analog (misoprostol). However, these approaches have not been completely successful, and the may increase both the cost of therapy, and the incidence of other adverse effects.[18-20] Due to the limitations associated with GIT injury prevention strategies, high-risk patients should be identified. High risk factors for NSAIDs related GIT damage include older age group, previous history of ulceration, first 3-months

of NSAIDs therapy, smoking, underlying respiratory or cardiovascular disease, and concomitant drug use, particularly corticosteroids, aspirin, and anticoagulants.[27] In our study the incidence of NSAIDs' associated gastric upset is increased with the following factors: age, being a female and peptic ulcer history **(Table 2)**. Considering that all NSAIDs users in this study used NSAIDs for short periods of time (we excluded chronic users) the criteria of first 3-months of therapy could apply as a risk factor in our study too. A small percentage of NSAIDs users were counseled by the pharmacist, while 61% were counseled by the doctor. Most of NSAIDs users were counseled to take oral NSAIDs after food; actually this recommendation is not always necessary. Subjects taking enteric-coated products should avoid taking them with milk, antacid, or anything that might rise the gastric pH as this may destroy the enteric coating and cause gastrointestinal symptoms in some patients.[6] Moreover, patients taking oral NSAIDs, especially those using NSAIDs for acute pain relief, should be counseled to take NSAIDs with water, and if GIT upset occurs they can take with food (like a glass of milk or a little snack).[28] A low percentage of NSAIDs users knew the less frequent more dangerous adverse effects. This poor counseling is not surprising, as many studies have documented that patient are poorly counseled by both physicians and pharmacists.[29-31] In order to decrease incidence of side effects and increase awareness of people regarding use of such group health care professionals and mainly pharmacists should ensure that NSAIDs are used for proper indications and that they are neither unnecessarily prescribed, nor over used, through proper counseling for each patient using these drugs.

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Appendix 1

Participant #: ----------

Age: ----------

Sex: ----------

Occupation: ----------

Education (# of years at school/college): ----------

1. Have you used any type of NSAID in the last year?

..... No ..... Yes

2. What type was used last, brand, dose, and dosage form?

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3. What was the indication for your last NSAID use?

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4. Did you suffer from any side effects from NSAIDs use?
_ No
_ Yes

5. What side effects did you have?

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6. Did you have prior history of GIT problems?

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7. What information do you know about NSAIDs?

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8. What is your preferred NSAIDs route of administration and why?
