Reducing Preventable Harm From Non-Steroidal Anti-Inflammatory Drugs

Amy Barton Pai, Pharm.D., BCPS, FASN, FCCP, FNKF
Associate Professor
University of Michigan
College of Pharmacy
Department of Clinical Pharmacy
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NSAIDs: Wolves in Sheep’s Clothing

• Prescription and OTC non-steroidal anti-inflammatory drugs (NSAIDs) are widely used

• Community-acquired acute kidney injury (CA-AKI) leads to poor outcomes but is common and preventable

• Patient knowledge of kidney risks with NSAIDs is poor and materials to educate are limited
  – 78% of people have taken an OTC pain medication, only 34% can name the active ingredient
  – NSAID avoidance education in community pharmacies
    • Pre and post patient knowledge questions (PKQ) administered (n=152). PKQ scores increased significantly after the education program (mean ± SD, 3.3 ± 1.4 vs. 4.6 ± 0.9, respectively, p=0.0019)
    • 48% reported current NSAID use and 67% reported that the program encouraged them to limit use of these agents

Reducing Preventable Harm from NSAIDs: A Multi-Pronged Approach

- Evaluate adverse kidney risks of Rx and OTC NSAIDs in a large cohort
- Implement a data driven, innovative community based-education program (CBEP) in the medical neighborhood

Epidemiologic study using large primary care data set (DARTNet)

Community Based Education Program
Patient-Primary Care Provider-Pharmacy
Medication label literacy
New Education Materials
- Mobile application
- Plain language print material
- Shelf talkers on product shelving
- Tear pads for pharmacists
MedLit-NSAID Medication Label Literacy Tool

- Focused on literacy around medication labeling
- Based on a previously developed and validated tool for dialysis patients (MedLit-D)
- MedLit-NSAID evaluates several aspects of literacy (locating, calculating, generating, integrating)
- Two specific questions on the MedLit NSAID tool query participants regarding kidney risks using the FDA medication guide (for Rx) and the OTC label to answer the questions
- Newest vital sign literacy tool also evaluated for comparison
- A priori analysis by three strata; gender, age (< or > 65) and estimated glomerular filtration rate (eGFR < or > 60 mL/min/1.73m²)
Prescription NSAIDs: FDA Medication Guide

Before taking NSAIDs, tell your healthcare provider about all of your medical conditions, including if you:

- have liver or kidney problems

What are the possible side effects of NSAIDs? NSAIDs can cause serious side effects, including:

See “What is the most important information I should know about medicines called NonSteroidal Anti-inflammatory Drugs (NSAIDs)?

- new or worse high blood pressure
- heart failure
- liver problems including liver failure
- kidney problems including kidney failure

- kidney problems including kidney failure
- bleeding and ulcers in the stomach and intestine
- low red blood cells (anemia)
- life-threatening skin reactions
- life-threatening allergic reactions
- liver problems including liver failure
- asthma attacks in people who have asthma
- nausea
- vomiting
- dizziness

Integrating Literacy Question (Rx)

Jamie has early kidney problems. Based on the medication guide provided what should be done about using this medication?

A. The drug is definitely safe to use.
B. Jamie should ask the provider about using the medication.
C. Jamie not use this medication at all.
D. Jamie should take over-the-counter ibuprofen instead.
Jamie is a person who has kidney problems, and wants to use this medicine now. What should Jamie do?

**Choose One Answer**

A. Take 1 tablet now.

B. Take 1 tablet now and call the doctor or pharmacist.

C. Call the doctor before taking the medicine.
Demographics

- 145 participants enrolled
- Mean age 56 ± 15 years
- Predominantly white, English primary language
- Majority report they self-manage their own medications

Education

- Some high school: 5
- High school: 33
- Some College: 29
- Associates degree: 10
- Bachelors degree: 32
- Masters degree: 23
- Doctoral degree: 33
<table>
<thead>
<tr>
<th>Pre-Defined Strata</th>
<th>Newest Vital Sign Score</th>
<th>MedLit-NSAID Score</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
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<td>No difference in number of integrating questions correct</td>
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<tr>
<td>Males vs. Females</td>
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<td></td>
<td>p &lt; 0.05</td>
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<tr>
<td>Age</td>
<td></td>
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<td>No difference in number of integrating questions correct</td>
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<tr>
<td>&lt; 65 vs ≥ 65 years</td>
<td>P &lt; 0.05</td>
<td></td>
<td></td>
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<tr>
<td>Kidney Function</td>
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<td>Responses were similar for Rx question</td>
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<tr>
<td>eGFR &lt; 60 vs &gt; 60 mL/min/1.73m²</td>
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<td>61% of people with eGFR &lt; 60 answered the OTC question</td>
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<td></td>
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<td>P &lt; 0.01</td>
<td>incorrectly vs 11% with eGFR &gt; 60</td>
</tr>
</tbody>
</table>
Summary

• Education materials required to be provided with NSAID prescriptions *are not heavily focused on kidney risks* and do not contain patient action plans regarding kidney risks.

• OTC NSAID labeling *may not be sufficient for patients to make informed judgements about their kidney risks.*

• *Innovative approaches should be studied* to improve both patient and provider awareness of kidney risks with NSAIDs to reduce episodes of CA-AKI.