

Group PICO Search Worksheet

Scenario:

Your patient is a 95 year old who is generally in good health, but has chronic knee pain despite having a knee replacement 10 years ago. She tells you that taking *Aleve* twice a day helps her with the pain, but you are concerned about the risks to her of using an NSAID on a regular basis.

She says, "I'm an old woman, how serious of a risk is it?" What can you tell her about the degree of risk of chronic NSAID use for her?

Define your Search Question:

In geriatric patients with joint pain, is acetaminophen more efficacious with less adverse effects than NSAIDs?

Identify the PICO elements:

P geriatric patients with joint pain

I acetaminophen

C chronic NSAID use

O adverse effects

What type of scenario is this?

- Therapy/ Prevention
- Diagnosis
- Etiology
- Prognosis
- Screening
- Prevalence
- Harms

Type of study best to answer this question: (think about the level of evidence)

- Meta-analysis
- Systematic Review
- Randomized Controlled Trial
- Cohort Study
- Case Control Study
- Case Series/Report

PICO Search Terms

P	I	C	O
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Elderly patients with knee pain	Acetaminophen	Chronic NSAID use	Adverse effects
Geriatrics patients with knee pain	Paracetamol	Ibuprofen	risks
Osteoarthritis	Tylenol	NSAIDS	Efficacy
Joint pain		Placebo	

Any other filters/limits you'd like to apply (gender/age/year/article type/language)?

- Systematic Reviews
- Meta-Analysis
- RCTs
- Age > 65 years old
- English

List the EBM resources you plan to use:

[For this assignment, you will use Pub Med. In the future, there will be other options as well.]

- PubMed

Results found:

Number of articles returned once relevant limits are added

- NSAIDs AND elderly AND safety AND paracetamol AND knee → **37**
- risk acetaminophen complications NSAIDs AND gastrointestinal → **232**
- Paracetamol AND NSAIDS AND osteoarthritis (meta analysis filter)-> **35**
- Elderly Patients AND Osteoarthritis AND NSAIDs vs Tylenol/Systematic Review → **2**

Please identify 3-5 articles you think would be most helpful in answering your search question. Cut and paste the search results page entries (see the assignment in BlackBoard for an example). For each article, say why you chose to include it

Article #1:

[A randomised controlled trial of ibuprofen, paracetamol or a combination tablet of ibuprofen/paracetamol in community-derived people with knee pain.](#)

Doherty M, Hawkey C, Goulder M, Gibb I, Hill N, Aspley S, Reader S.

Reason:

We chose this article because it offers a comparison between the adverse effects of taking an NSAID (ibuprofen) and acetaminophen (paracetamol) as monotherapy, as well as the adverse effects of taking them in combination. The population it focuses on is individuals 40 years or older with knee pain, which fits our patient, who is an elderly woman with knee pain. The RCT's results on safety were that the frequency of adverse effects between ibuprofen and acetaminophen were comparable. There was a higher incidence of liver function test abnormalities with acetaminophen monotherapy and a higher incidence of blood loss (decrease in hemoglobin) with ibuprofen. The effects were additive in combination, with diarrhea being the most commonly reported symptom. One limitation of the article was that 40 years of age is not considered elderly, so if the article had been narrowed to a higher age limit, then it would have applied better to our patient case.

Article #2 (Fredrique):

Relative **risk** of upper gastrointestinal **complications** among users of **acetaminophen** and nonsteroidal anti-inflammatory drugs.

García Rodríguez LA, et al. *Epidemiology*. 2001. PMID: 11505178

Reason:

We chose this case-control study because it demonstrated comparisons we felt were important and relevant to our patient. It directly compared the likelihood of gastrointestinal [GI] complications (a well-associated risk of NSAIDs) occurring with NSAID use to the likelihood of GI complications occurring with acetaminophen use. It also compared the risk of GI complications between NSAIDs with varying plasma half-lives and release formulations. The study also examined the risk of GI complications with concurrent NSAID and acetaminophen use. It found that acetaminophen was associated with an increased risk of upper GI bleeding/perforation, *but* only when taken at daily doses above 2,000 mg. All NSAIDs had a greater relative risk (RR) of upper GI complications at higher doses, and those with a long half-life or slow-release formulation were associated with a slightly greater RR than NSAIDs with a short half-life.

Article #3:

Does paracetamol (acetaminophen) reduce the pain of osteoarthritis? A meta-analysis of randomised controlled trials. Zhang W, Jones A, Doherty M. *Ann Rheum Dis*. 2004 Aug;63(8):901-7. doi: 10.1136/ard.2003.018531. Epub 2004 Mar 5. PMID: 15020311; PMCID: PMC1755098.

Reason:

We chose this meta analysis because Paracetamol was seen to be effective in alleviating the pain in osteoarthritis patients. This was an imperative finding for our patient as we believe due to her age and the risk of gastrointestinal side effects due to NSAIDs, paracetamol would be a better option to start with as discussed in the meta analysis. The meta analysis did find that NSAIDs had a higher clinical response rate but the analysis did not recommend using it as a starting treatment option and favored the use of paracetamol instead as the first line treatment due to its efficacy and lower adverse effect profile.

Article #4 (Ari):

NSAIDs vs acetaminophen in knee and hip osteoarthritis: a systematic review regarding heterogeneity influencing the outcomes.

Verkleij SP, Luijsterburg PA, Bohnen AM, Koes BW, Bierma-Zeinstra SM.

Osteoarthritis Cartilage. 2011 Aug;19(8):921-9. doi: 10.1016/j.joca.2011.04.013. Epub 2011 May 12.

PMID: 21619937 [Free article](#). [Review](#).

Reason:

We selected this systematic review because it “investigated various sources of heterogeneity (statistical, clinical, and methodological) of RCTs” evaluating the efficacy of acetaminophen vs NSAIDs in patients with knee and hip osteoarthritis. This means that the systematic review not only analyzed efficacy in pain management for OA with these medications, but that they also took note of differences regarding how variable results were, the participants, interventions, and outcomes of each study, and any variations in how trials were designed. Results concluded that efficacy of NSAIDs and acetaminophen is probably the same in patients with mild osteoarthritis but that these medications provide greater relief for knee OA vs hip OA. Overall, the authors concluded that more studies must be conducted in order to conclude whether acetaminophen or NSAIDs are better for moderate-severe pain management of knee/hip OA.

Article #5:

Three-month efficacy and safety of acetaminophen extended-release for osteoarthritis pain of the hip or knee: a randomized, double-blind, placebo-controlled study

R D Altman 1, J R Zinsenheim, A R Temple, J E Schweinle

[Affiliations expand](#)

PMID: 17142063 DOI: 10.1016/j.joca.2006.10.008

Reason:

We selected this randomized control study because it tested the safety and efficacy of using acetaminophen for osteoarthritis knee pain. This was a randomized, double-blind study that tested whether acetaminophen would have efficacy in controlling hip and knee

pain in patients older than 40 with osteoarthritis. There were 483 participants split up within three groups. The first group received 3 doses of extended release acetaminophen for a total of 1950 mg daily. The next group received 3 doses of extended release acetaminophen for a total of 3900 mg daily. The last group received 3 doses of a placebo daily. The results showed that acetaminophen was more efficacious than the placebo with both groups of the acetaminophen treatment. Although in patients with a higher baseline of pain, the 3900 mg dose was more efficacious than the 1950 mg dose. Patients in the placebo group had a higher rate of withdrawal than the other treatment groups, due to lack of efficacy. The adverse effects were monitored and the only one to be found in 3 patients was an increase in AST/ALT, but they were in patients with other comorbid conditions or patients taking other medications. Overall there was a very good efficacy and side effect profile in acetaminophen for patients with joint pain.

Limitation:

Due to the lack of studies done on elderly patients, this study was done on 40+ year olds. We hope that the same results will also apply to our patient who is 95 years old.