Empowering Patients to Reduce Lumbar Puncture Associated Spinal Headaches

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Objectives

- Determine risk factors for developing post-lumbar puncture headaches (PLPH)
- Determine interventions to prevent PLPH
- Determine interventions to treat PLPH
- Develop nurse and patient education materials

Introduction

- Post-lumbar puncture headache is a common complication of a lumbar puncture procedure
- Worsens when in an upright position
- Headache is alleviated when lying down
- Resolves within one week
- Most commonly prescribed treatments are often ineffective
- Most common treatments are prolonged bed rest, analgesics, and increased fluid intake

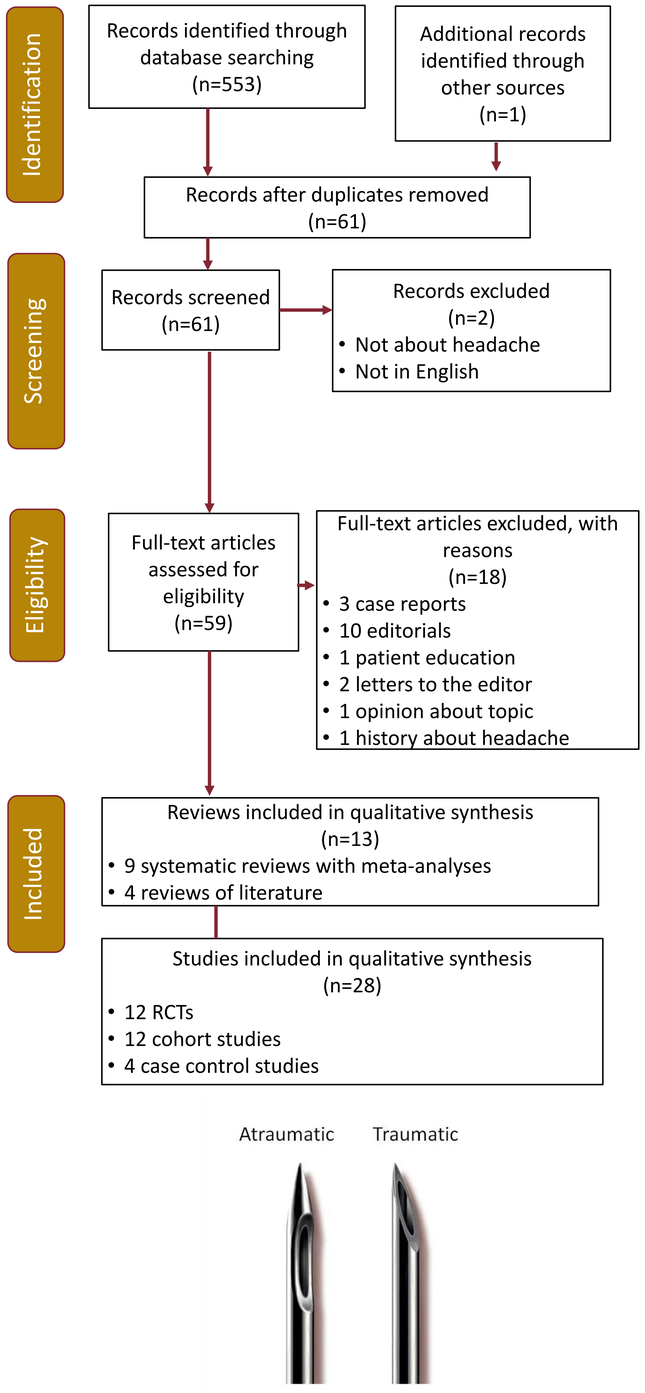
Rationale

- Lack of knowledge about risk, prevention, and treatment among persons having a lumbar puncture
- Most commonly prescribed treatments are often ineffective
- Nurses have contact with patients having a lumbar puncture and can provide patient education to improve outcomes

Methods

- Systematic review of the research literature
- Databases used: CINAHL complete, Medline complete, and Health Source: Nursing/Academic Edition.
- 41 total reviews and studies included

PRISMA Diagram



Results

- Risk factors that increase headache incidence
  - Low body mass index
  - Female
  - Age: younger than 30 years old
- Effective prevention interventions
  - Smaller gauge needles (i.e. 25 gauge)
  - Atraumatic needles (pencil-point or Whitacre)
  - Less CSF fluid removed
- Treatments that made a minimal difference
  - Increasing fluid intake
  - Prolonged periods of rest
  - Administering intravenous caffeine
- Treatments that were most effective
  - Blood patch
  - Certain medications such as morphine, aminophylline, dexamethasone, cosyntropin, pregabalin

Risk Factors

	Young Age (< 30 y/o)	Female (gender)	Low Body Mass Index
Systematic Review	-	-	-
Literature Review	2	3	1
Random Controlled Trial	-	1	-
Cohort Study	3	2	-
Case Report	2	1	1

Prevention

	Atraumatic vs. Traumatic Needle	Size (gauge) of Needle	Smaller CSF Collection
Systematic Review	4	1	-
Literature Review	3	1	-
Random Controlled Trial	4	1	-
Cohort Study	3	1	2
Case Report	-	2	-

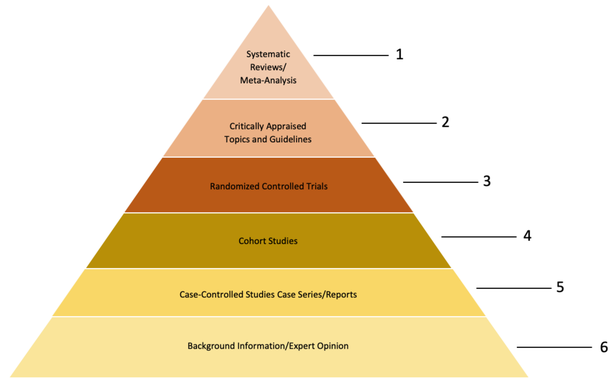
Strengths and Limitations

- Strengths
  - Strong support for use of atraumatic needles
  - Moderate support for smaller needles and less CSF removal
- Limitations
  - Studies had methodological limitations
  - Difficult to deduce conclusions across studies
  - Weak support for risk factors and treatment interventions except blood patch

Outcomes

- Created a patient education brochure and an online nursing continuing education program
- Writing a systematic review of the research literature article for submission to a nursing professional journal
- Presenting a poster at a national nursing honor society conference

Level of Evidence Hierarchy (LOE)



Adapted from Ohio State University: Baker, A. (n.d.). Evidence based practice pyramid [online image] Retrieved from http://www.guides.osu.edu/Pharmacy/EBM

Reference list available upon request