Pain Control for Intrauterine Device Placement: A Trial of Ketorolac Prior to Intrauterine Device Placement

ClinicalTrials.gov Identifier: NCT01664559

Recruitment Status : Completed
First Posted : August 14, 2012
Results First Posted : December 23, 2015
Last Update Posted : December 23, 2015

Sponsor:
Lynn Ngo

Information provided by (Responsible Party):
Lynn Ngo, University of California, San Diego

Study Description

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Brief Summary:
Intrauterine device (IUD) placement can be painful for patients during and after the procedure. Fear of pain from IUD insertion can be a barrier to obtaining this highly effective long acting reversible contraception. Currently there are no proven effective methods for reduction of pain during and after placement of modern IUDs (Mirena IUD and Paragard IUD). Ketorolac has not been studied in regards to decreasing pain during and after IUD insertion although it is used by some providers for this purpose. It is a strong NSAID that is indicated for the treatment of moderate acute pain. In the intramuscular form it has an analgesia onset of action at 30min, thus may be a plausible option for pain management in the office setting compared to oral NSAIDs, which have a longer time to onset of analgesia and have not been proven to be effective in reducing pain associated with IUD placement. The primary aim of this study is to determine whether ketorolac (Toradol) decreases pain associated

with intrauterine device placement compared to placebo. We hypothesize that administration of ketorolac 30mg intramuscularly at least 30 minutes prior to IUD insertion will decrease pain scores by at least 20mm on a visual analog scale at various time points during IUD insertion when compared to placebo of normal saline injection.

Condition or disease	Intervention/treatment	Phase
Pain Control With IUD Insertion	Drug: Ketorolac Drug: Normal Saline	Not Applicable

Detailed Description:

Modern intrauterine devices are highly effective long acting reversible forms of contraception. The Mirena IUD is 99.8% effective and the Paragard copper IUD is 99.2% effective in preventing pregnancy (Zieman 2010). Fear of intrauterine device placement can be a barrier to obtaining this highly effective form of birth control. The current standard of care for pain management during and after IUD placement is no medication, as randomized control trials published to date have limited data regarding use of medications to decrease pain. There has been one trial to suggest that the use of naproxen with 1% lidocaine paracervical block compared to paracervical block alone may decrease pain after IUD placement in primarily nulliparous patients. However, this study was with the much wider and no longer available Dalkon Shield IUD. In addition, this study did not show any significant decrease in pain scores during IUD placement (Massey 1974). Studies to evaluate effectiveness of motrin and misoprostol have shown no significant decrease in pain scores during and after IUD insertion, although the majority of participants in these studies were multiparous (Jensen 1998, Hubacher 2006, Saav 1997). There is some suggestion that 2% lidocaine gel one minute prior to IUD insertion may have some decrease in pain, although this study was poorly designed (Oloto 1996).

There have been no studies published to date regarding the use of ketorolac for decreasing pain during and after IUD placement. Ketorolac is an acetic acid NSAID that reversibly inhibits COX 1 and 2, leading to decreased formation of prostaglandin precursors, and is indicated for the use of moderate acute pain in the short term setting. Its administration in the office setting may be good option for providers since intramuscular administration leads to analgesia beginning at 30 minutes, maximal effect 1 to 2 hours after administration, and duration of analgesia approximately 4 to 6 hours for the 30mg intramuscular injection.

Although there is no standard of care in regards to pain medication administration prior to IUD placement, providers at UCSD often suggest certain options. These include ibuprofen at least one hour prior to the procedure, or ibuprofen taken within a few hours after the procedure, or ketorolac injection at least 15-30 minutes prior to the procedure. It would be beneficial for providers to have an evidence based option for patients.

Study Design

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Study Type :	Interventional (Clinical Trial)
Actual Enrollment :	67 participants
Allocation:	Randomized
Intervention Model:	Parallel Assignment
Masking:	Quadruple (Participant, Care Provider, Investigator, Outcomes Assessor)
Primary Purpose:	Treatment
Official Title:	Pain Control for Intrauterine Device Placement: A Randomized, Double Blind Control Trial of Ketorolac Prior to Intrauterine Device Placement.
Study Start Date :	July 2012
Actual Primary Completion Date :	March 2014
Actual Study Completion Date :	March 2014

Resource links provided by the National Library of Medicine NIH NLM

MedlinePlus related topics: Non-Drug Pain Management

Drug Information available for: Ketorolac
Ketorolac tromethamine

U.S. FDA Resources

Arms and Interventions

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Arm	Intervention/treatment
Placebo Comparator: Placebo with 1cc normal saline IM If the patient is randomized to the placebo arm, they will receive 1cc of normal saline via the intramuscular route.	Drug: Normal Saline Placebo arm, 1cc of normal saline, 0.9%, intramuscular injection Other Name: REF# 196604
Experimental: Toradol, 30mg in 1cc IM If the patient is randomized to the toradol (ketorolac) arm, they will receive 30mg of toradol in a 1cc volume via the intramuscular route.	Drug: Ketorolac Ketorolac 30mg intramuscular injection, 1cc volume Other Names:

	• Brand name: toradol • Serial # (01) 1 030409 379649 7

Outcome Measures

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Primary Outcome Measures :

1. VAS (Visual Analogue Scale) Measurement of Pain [Time Frame: Pain with IUD placement, measured immediately after placement]

   The patient marked their pain on a 0 to 10cm visual analogue scale, where 0 cm is no pain and 10 cm is the worst pain ever.

Secondary Outcome Measures :

1. Pain Scores at Other Time Points During and After IUD Placement [Time Frame: immediately after each step (see description)]

   The patient marked their pain on a 0 to 10cm visual analogue scale, where 0 cm is no pain and 10 cm is the worst pain ever.

   1. Prior to injection of study drug, anticipated pain
   2. Pain from study drug injection, measured immediately after injection
   3. Pain from speculum insertion, measured immediately after insertion
   4. Pain with tenaculum placement, measured immediately after placement
   5. Pain with uterine sounding, measured immediately after removal of the sound
   6. Pain at 5 minutes after placement of the intrauterine device
   7. Pain at 15 minutes after placement of the intrauterine device

2. Nulliparous Patients - Subgroup Analysis [Time Frame: immediately after each step (see description)]

   The patient marked their pain on a 0 to 10cm visual analogue scale, where 0 cm is no pain and 10 cm is the worst pain ever.

   1. Prior to injection of study drug, anticipated pain
   2. Pain from study drug injection, measured immediately after injection
   3. Pain from speculum insertion, measured immediately after insertion

4. Pain with tenaculum placement, measured immediately after placement
5. Pain with uterine sounding, measured immediately after removal of the sound
6. Pain at 5 minutes after placement of the intrauterine device
7. Pain at 15 minutes after placement of the intrauterine device

3. Post-insertion Patient Questionnaire [Time Frame: assessed at 15 minutes after IUD insertion]

   Questions assessed in multiple choice format:

   1. Side effects
   2. injection site pain
   3. overall satisfaction with IUD insertion experience
   4. would they still recommend IUD placement to a friend?
   5. significant pain for which they desired acetaminophen prior to leaving the office?

4. Post-insertion Provider Questionnaire [Time Frame: Immediately after IUD placement, on average within 1 hour]

   The provider will be asked to fill out a multiple choice format questionnaire:

   1. what level training are you?
   2. which IUD was inserted?
   3. what was the purpose of IUD placement?
   4. what was the position of the uterus?
   5. did the IUD placement process require cervical dilation?
   6. were you able to complete the IUD insertion?
   7. was there bleeding from the cervix that required more than 5 min to control?
   8. were there any major complications with the IUD insertion?
   9. did the patient take tylenol prior to leaving the office?

Eligibility Criteria

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Choosing to participate in a study is an important personal decision. Talk with your doctor and family members or friends about deciding to join a study. To learn more about this study, you or your doctor may contact the study research staff using the contacts provided below. For general information, Learn About Clinical Studies.

Ages Eligible for Study:	18 Years to 50 Years (Adult)
Sexes Eligible for Study:	Female
Accepts Healthy Volunteers:	Yes

Criteria

Inclusion Criteria:

- Nulliparous and multiparous women ages 18-50, who are English or Spanish speaking, who present for intrauterine device placement for contraception or menorrhagia (in the case of Mirena IUD insertion).

Exclusion Criteria:

- Pregnancy
- Any diagnosed chronic pain issues (i.e. fibromyalgia, endometriosis, dysmenorrhea, irritable bowel syndrome, interstitial cystitis)
- If the patient has taken any pain medications within 6 hours of enrollment, including aspirin or other NSAIDs
- Misoprostol administration within 24 hours of enrollment
- History of prior IUD insertion
- Known allergy to NSAIDs including diagnosis of aspirin or NSAID induced asthma or urticaria
- Known contraindications to NSAIDs, such as the following medications that are risk category D (consider therapy modification) or X (avoid combination) including
    - bile acid sequestrants (D - may decrease absorption of NSAIDs)
    - cyclosporine (D - NSAIDs may enhance the nephrotoxic effects)
    - drotrecogin alfa (D - NSAIDs may enhance the adverse/toxic effects, cause bleeding)
    - floctafenine (X - may enhance adverse/toxic effect of NSAIDs)
    - lithium (D - NSAIDs may decrease serum concentration)
    - methotrexate (D - NSAIDs may decrease excretion)
    - pentoxifylline (X - Ketorolac may enhance adverse/toxic effects)
    - probenecid (X - may increase serum concentration of Ketorolac)
    - rivaroxaban (D - Anti-platelet drugs may enhance anti-coagulation effect)

- SSRIs (D - may enhance the anti-platelet effect of NSAIDs, NSAIDs may diminish the therapeutic effect of SSRIs)
- warfarin (D - NSAIDs may enhance the anti-coagulation effect)

- Renal insufficiency (by history and/or chart review)
- Peptic ulcer disease or history of significant gastrointestinal bleeding
- Known thrombocytopenia, known coagulopathy, or known bleeding disorder
- Known contraindications to IUD

Contacts and Locations

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Information from the National Library of Medicine NIH NLM

To learn more about this study, you or your doctor may contact the study research staff using the contact information provided by the sponsor.

Please refer to this study by its ClinicalTrials.gov identifier (NCT number): ***NCT01664559***

Locations

United States, California

University of California San Diego
San Diego, California, United States, 92103

Sponsors and Collaborators

Lynn Ngo

Investigators

Study Director:	Lynn L Ngo, MD	University of California, San Diego
Principal Investigator:	Sheila Mody, MD MPH	University of California, San Diego

More Information

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Publications:

Allen RH, Bartz D, Grimes DA, Hubacher D, O'Brien P. Interventions for pain with intrauterine device insertion. Cochrane Database Syst Rev. 2009 Jul 8;(3):CD007373. doi:

10.1002/14651858.CD007373.pub2. Review. Update in: Cochrane Database Syst Rev. 2015;7:CD007373.

Roche NE, Li D, James D, Fechner A, Tilak V. The effect of perioperative ketorolac on pain control in pregnancy termination. Contraception. 2012 Mar;85(3):299-303. doi: 10.1016/j.contraception.2011.10.001. Epub 2011 Nov 30.

Edelman AB, Schaefer E, Olson A, Van Houten L, Bednarek P, Leclair C, Jensen JT. Effects of prophylactic misoprostol administration prior to intrauterine device insertion in nulliparous women. Contraception. 2011 Sep;84(3):234-9. doi: 10.1016/j.contraception.2011.01.016. Epub 2011 Mar 3.

Publications automatically indexed to this study by ClinicalTrials.gov Identifier (NCT Number):

Ngo LL, Ward KK, Mody SK. Ketorolac for Pain Control With Intrauterine Device Placement: A Randomized Controlled Trial. Obstet Gynecol. 2015 Jul;126(1):29-36. doi: 10.1097/AOG.0000000000000912.

Responsible Party:	Lynn Ngo, Resident Physician, University of California, San Diego
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Keywords provided by Lynn Ngo, University of California, San Diego:

intrauterine device	mirena
ketorolac	paragard
toradol	pain control

Additional relevant MeSH terms:

Ketorolac	Physiological Effects of Drugs
Ketorolac Tromethamine	Anti-Inflammatory Agents
Anti-Inflammatory Agents, Non-Steroidal	Antirheumatic Agents
Analgesics, Non-Narcotic	Cyclooxygenase Inhibitors
Analgesics	Enzyme Inhibitors
Sensory System Agents	Molecular Mechanisms of Pharmacological Action
Peripheral Nervous System Agents	