GEMs
GOOD EVIDENCE MATTERS

GEMs of the Week

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What's in this week's issue?

Week of May 8 - 12, 2023

SPOTLIGHT: Comparing Quality of Life After Myomectomy vs Uterine Artery Embolization

- Could the Geniculate Nerve Block Be the Next Great Thing for Knee Osteoarthritis?
- Get that Runner's Knee Better with OMT and Exercise!
- Walk It Off! Arthroscopy versus PT for Meniscal Tears

Comparing Quality of Life After Myomectomy vs Uterine Artery Embolization

Uterine-Artery Embolization or Myomectomy for Uterine Fibroids

Manyonda I, Belli M, Moss J, et al. Uterine-artery embolization or myomectomy for uterine fibroids. *New England Journal of Medicine*. 2020;383(22):2185-2187. doi:10.1056/nejmc2028904

KEY TAKEAWAY: Women who undergo a myomectomy as a treatment for symptomatic uterine fibroids have a higher satisfaction with their quality of life as it relates to symptoms pertaining to uterine fibroids than women who are treated with uterine artery embolization.

STUDY DESIGN: Randomized control trial

LEVEL OF EVIDENCE: STEP 2

BRIEF BACKGROUND INFORMATION: Uterine artery embolization and myomectomy are two common procedures used to treat symptomatic uterine fibroids in women that do not want to undergo a hysterectomy. While there have been studies in the past regarding each of these interventions individually, there have been few comparing the two, and what studies there have been had stopped their follow-up after one year. There are some studies that did a meta-analysis after two years, but those studies yielded inconclusive results.

PATIENTS: Women with symptomatic uterine fibroids

INTERVENTION: Myomectomy

CONTROL: Uterine artery embolization

PRIMARY OUTCOME: Satisfaction with quality of life
Secondary Outcome: Satisfaction with the procedure, additional interventions needed after initial procedure

METHODS (BRIEF DESCRIPTION):

- Women of reproductive age who have symptomatic uterine fibroids but did not want to undergo a hysterectomy.
- These women were evaluated by an OBGYN and an interventional radiologist and determined to be candidates for either intervention.
- The participants were not blinded due to needing informed consent to undergo either procedure, including risk benefits, and needing a full understanding as to what was involved in the specific treatment modality.
- Women were given UFS-QOL questionnaire to measure satisfaction with the quality of life (0–100) two years after randomization that inquired about symptoms related to uterine fibroids, pregnancy/birth, and satisfaction with the procedure as well as additional interventions needed after the initial procedure.

INTERVENTION (# IN THE GROUP): 127

COMPARISON (# IN THE GROUP): 127

FOLLOW-UP PERIOD: Two years

RESULTS:

Primary Outcome –

- Myomectomy increased satisfaction of quality of life more than uterine artery embolism at two years (85 vs 80, respectively; *P*=.01).

Secondary Outcome –

- Uterine artery embolization (27/113) and myomectomy (34/118) had similar peri- and postpartum complications (relative risk 1.2; 95% CI, 0.8–1.9).
- 93% of women in the myomectomy group would recommend the procedure. 84% of women in the uterine artery embolization group would recommend the procedure.
- The median number of days spent in the hospital recovering from embolization was 4 days. The number of days spent recovering from myomectomy was two days.
- 18/110 women in the uterine artery embolization group required follow-up procedures. 8/111 women in the myomectomy group required follow-up procedures.

LIMITATIONS:

- 19% of participants were lost to follow up.
- The study was not blind, which may have affected subjectively reported data in unknown ways.
- After randomization, the two groups appeared to have significant differences in some areas, like age.

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Could the Geniculate Nerve Block Be the Next Great Thing for Knee Osteoarthritis?

Ultrasound-Guided Genicular Nerve Block Versus Physical Therapy for Chronic Knee Osteoarthritis: A Prospective Randomised Study

Güler T, Yurdakul FG, Önder ME, et al. Ultrasound-guided genicular nerve block versus physical therapy for chronic knee osteoarthritis: a prospective randomised study. *Rheumatol Int*. 2022;42(4):591-600. doi:10.1007/s00296-022-05101-8

KEY TAKEAWAY: Ultrasound-guided genicular nerve block and physical therapy are similarly effective in reducing pain in patients with knee osteoarthritis.

STUDY DESIGN: Randomized, single-blind, controlled trial

LEVEL OF EVIDENCE: STEP 2

BRIEF BACKGROUND INFORMATION: Knee osteoarthritis (KOA) is painful and difficult to treat, with a significant impact on quality of life. Physical therapy is an established modality in treating KOA but can be expensive and inaccessible. Genicular nerve block has been used to prevent pain after knee arthroplasty by anesthetizing the knee joint, but its role in KOA has not been fully established.

PATIENTS: Patients with knee osteoarthritis (KOA)

INTERVENTION: Genicular nerve block (GNB) with home exercise prescription

CONTROL: Physical therapy (PT) with home exercise prescription

PRIMARY OUTCOME: Pain reduction

Secondary Outcome: Physical function, physical capacity

METHODS (BRIEF DESCRIPTION):

- 45 to 70-year-old patients with KOA according to American College of Rheumatology criteria and Kellgren–Lawrence grade two or three severity were included in the study.
- Patients were randomized to one of the following treatments:
  - US-guided GNB using 2% lidocaine and triamcinolone.
  - Physical therapy five days a week for two weeks utilizing heating, ultrasonic therapy, and transcutaneous electrical nerve stimulation.
- An exercise regimen was also demonstrated to both groups of patients which was instructed to be completed three times a day, three days a week.
- Primary outcome:
  - Pain measured with a 0–10 cm Visual Analogue Scale (VAS) with higher scores meaning worse pain.
- Secondary outcomes:
  - Physical function measured with the Western Ontario and McMaster Universities (WOMAC) index ranging from 0 to 96, with higher scores meaning less functionality.
  - Physical capacity measured with total distance covered in a six-minute walk test (6MWT), measured in meters (m).
- All outcomes were measured initially, at two weeks, and at 12 weeks.

INTERVENTION (# IN THE GROUP): 40

COMPARISON (# IN THE GROUP): 46

FOLLOW-UP PERIOD: 12 weeks

RESULTS:

Primary Outcome –

- GNB and PT both reduced pain from baseline.
  - GNB: baseline –7.0, 2 weeks –3.7 (P<.001), 12 weeks –5.1 (P<.001)
  - PT: baseline –6.6, 2 weeks –4.4 (P<.001), 12 weeks –5.3 (P<.001)
- The degree of pain reduction of GNB and PT was similar between groups.
  - Two-week difference from baseline –3.3 and 2.3 (P=.652), respectively
  - 12-week difference from baseline –1.9 and 1.4 (P=.823), respectively

Secondary Outcome –

- GNB resulted in a similar increase in physical function compared to PT at both two and 12 weeks.
- GNB resulted in a similar increase in physical capacity as PT at two weeks.
- At 12 weeks, this increase was statistically significant (66 vs 16, respectively; P=.046).

LIMITATIONS:

- The trial did not assess efficacy beyond 12 weeks; therefore, the long-term effects are unknown.
- The physical therapy described in the trial consisted of 10 sessions utilizing heating, ultrasonic therapy, and transcutaneous electrical nerve stimulation. This specific physical therapy regimen may be

different from what most patients actually receive in a non-controlled setting.

- Both groups received a home exercise program which may or may not be related to the outcomes. For instance, the larger improvement in 6MWT in the GNB group may have been because they could tolerate the home exercise regimen better and the improvement was dependent on home exercise.
- Finally, direct comparison with intraarticular steroid injection is still lacking.

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Get that Runner's Knee Better with OMT and Exercise!

Osteopathic Manipulative Treatment Versus Exercise Program in Runners with Patellofemoral Pain Syndrome: A Randomized Controlled Trial

Zago J, Amatuzzi F, Rondinel T, Matheus JP. Osteopathic Manipulative Treatment Versus Exercise Program in Runners with Patellofemoral Pain Syndrome: A Randomized Controlled Trial. *J Sport Rehabil*. 2020;30(4):609-618. Published 2020 Dec 17. doi:10.1123/jsr.2020-0108

KEY TAKEAWAY: Pain from Patellofemoral Pain Syndrome (PFPS) can be effectively treated by both Osteopathic Manipulative Treatment (OMT) and Exercise Program (EP) treatments.

STUDY DESIGN: Randomized controlled trial

LEVEL OF EVIDENCE: STEP 2

BRIEF BACKGROUND INFORMATION: PFPS can range from annoying knee pain to debilitating knee pain and knee instability for athletes. OMT is well-studied for its effectiveness in treating several different musculoskeletal (MSK) related pathologies. Exercise programs have long been known to be effective for PFPS, but OMT has not been specifically studied for this pathology. This study is aimed to examine the effectiveness of OMT on PFPS.

PATIENTS: Runners with recurrent knee pain

INTERVENTION: OMT or EP

CONTROL: No intervention

PRIMARY OUTCOME: Alleviation of pain

Secondary Outcome: Mobility, functionality

METHODS (BRIEF DESCRIPTION):

- 18–35-year-old male and female runners in Brasilia, Brazil were diagnosed by researchers with recurrent pain in the anterior region of the knee for at least three months and in two or more activities that usually cause the PFPS.
- The OMT sessions were approximately 40 minutes twice a week for three weeks. The techniques consisted of High-Velocity-Low-Amplitude (HVLA) and myofascial release applied to the lumbosacral spine and/or hip, sacroiliac joint, knee, ankle, lumbar square muscle and/or fascia lata tensor, iliopsoas, piriformis, quadriceps, and gastrocnemius muscles.
- The EP sessions were approximately 40 minutes twice a week for three weeks. The EP included knee flexion and hip flexion/extension/rotation exercises; some of the exercises included ankle weights or elastic resistance. Participants performed free squats and sidesteps with elastic resistance. The EP ended with stretching of the hamstrings, iliotibial tract, and plantar flexors.
- Visual analog scale to assess pain: 0–10 scale, the higher the score, the greater the pain
- Lysholm Knee Scoring Scale (LKSS) questionnaire to assess functionality: 8 questions with multiple choice answers assessing limitations in function, pain, and edema. Total of 100 points, the higher the score, the better the knee function
- Step-down test assessing Dynamic Knee Valgus (DKV): The symptomatic limb is on a stable surface. Valgus angle is measured with a two-dimensional video assessment of the frontal plane using proprietary software.

INTERVENTION (# IN THE GROUP):

- OMT: 30
- EP: 28

COMPARISON (# IN THE GROUP): 24

FOLLOW-UP PERIOD: 30 days

RESULTS:

Primary Outcome –

- OMT decreased pain more than no intervention (–6.6 vs 0.5; $P<.05$).
- EP decreased pain more than no intervention (–4.4 vs 0.5; $P<.05$).

Secondary Outcome –

- OMT improved knee functionality more than no intervention (30 vs 1.1; $P<.05$).
- EP improved knee functionality more than no intervention (18 vs 1.1; $P<.05$).
- OMT improved knee stability vs no intervention (10 vs –0.75; $P<.05$).
- EP improved knee stability vs no intervention (1.5 vs –0.75; $P<.05$).

LIMITATIONS:

- There is no specific imaging or single test that can specifically diagnose PFPS.

- There were no significant safeguards to monitor whether the participants performed running exercises during the study.
- We cannot say whether OMT was more effective or as effective as EP due to statistical measures provided for comparing these two groups.

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Walk It Off! Arthroscopy versus PT for Meniscal Tears

Effect of Physical Therapy vs Arthroscopic Partial Meniscectomy in People with Degenerative Meniscal Tears: Five-Year Follow-up of the ESCAPE Randomized Clinical Trial

Noorduyn JCA, van de Graaf VA, Willigenburg NW, et al. Effect of Physical Therapy vs Arthroscopic Partial Meniscectomy in People with Degenerative Meniscal Tears: Five-Year Follow-up of the ESCAPE Randomized Clinical Trial. *JAMA Netw Open*. 2022;5(7):e2220394. Published 2022 Jul 1. doi:10.1001/jamanetworkopen.2022.20394

KEY TAKEAWAY: Exercise-based physical therapy (PT) may be as good as partial arthroscopic meniscectomy for non-traumatic meniscal tears at five years.

STUDY DESIGN: Noninferiority, multicenter randomized clinical trial

LEVEL OF EVIDENCE: STEP 3 (downgraded due to lack of blinding and high crossover rate)

BRIEF BACKGROUND INFORMATION: Long-term trials of arthroscopic partial meniscectomy versus exercise therapy have consistently resulted in non-clinically relevant differences. This study aimed to determine patient-reported knee function after undergoing either meniscectomy or PT.

PATIENTS: Older adults with meniscal tears

INTERVENTION: Partial arthroscopic meniscectomy

CONTROL: Exercise PT

PRIMARY OUTCOME: Patient-reported knee function at five years

Secondary Outcome: Patient-reported knee function at one year

METHODS (BRIEF DESCRIPTION):

- Participants included those 45–70 years old from orthopedic departments in nine hospitals in the Netherlands with non-traumatic meniscal tears confirmed on MRI imaging.
- Patients with traumatic meniscal tears, locked knees, BMI >35, or severe structural knee osteoarthritis were excluded.
- The mean age was 58 years and 50.2% were female.
- The treatment group underwent arthroscopic partial meniscectomy with a post-operative home exercise program.
    - Follow-up occurred at eight-weeks post-operatively at which time patients were referred to PT if having delayed recovery.
- The control group received 16 sessions of exercise-based PT.
- The primary outcome was patient-reported knee function measured via the International Knee Committee Questionnaire (IKDC, ranging from 0-100 with higher numbers indicating fewer limitations in function and minimal important change of 11 points) at baseline and five years.

INTERVENTION (# IN THE GROUP): 159

COMPARISON (# IN THE GROUP): 162

FOLLOW-UP PERIOD: Length of time

RESULTS:

Primary Outcome –

- Using an intention-to-treat analysis, mean improvement in knee function score at baseline to five years with surgery was comparable to PT (adjusted mean difference [MD] 3.8; 95% CI, 0.8–6.8; CI did not cross noninferiority threshold of 11).

Secondary Outcome –

- Mean improvement in knee function score at baseline to one year may demonstrate a greater, but clinically questionable, improvement with surgery as compared to PT (adjusted MD 7.1; 95% CI, 3.0–11; CI did cross the non-inferiority threshold).

LIMITATIONS:

- The cross-over rate in the PT group to delayed surgery was 32%.
- Knee radiographic studies lack sensitivity for monitoring changes in knee osteoarthritis as compared to MRI which was not used.
- The reasons for patient non-response to the questionnaires were not reported which could introduce bias.

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