

Nonspherical Polyvinyl Alcohol Particles versus Tris-Acryl Microspheres

Randomized Controlled Trial Comparing Pain after Uterine Artery Embolization for Symptomatic Fibroids

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Purpose:

Data are limited regarding comparison between nonspherical polyvinyl alcohol (PVA) particles and tris-acryl gelatin microspheres (TAGM) in uterine artery embolization (UAE). The purpose of this study is to compare pain after UAE with PVA versus TAGM for treatment of symptomatic fibroids.

Materials & Methods:

- This study was a randomized controlled trial. Participants and investigators collecting data were blinded to the embolic material utilized.
- 54 participants (mean age, 44 years \pm 4 [standard deviation]) were assigned to be administered nonspherical PVA (355–550 μ m) or TAGM (500–700 μ m) (27 participants in each group).
- Patients with concomitant disease (adenomyosis) were excluded.
- Both groups were administered fentanyl-based intravenous patient-controlled analgesia during the first 24 hours after UAE and rescue analgesics.
- Neutrophil-to-lymphocyte ratio was measured to assess inflammatory response.
- Contrast-enhanced MRI 1 day after UAE was used to evaluate dominant fibroid necrosis and ischemia of normal myometrium.
- Symptom severity score and health-related quality-of-life score were assessed before and 3 months after UAE.
- Variables measured over time were analyzed by using the generalized estimating equation method.

Key Take-Aways:

- Pain scores and fentanyl dose were not different during the first 24 hours, but the use of rescue analgesics was higher in the PVA group (33% vs 11%; $P = .049$).
- After embolization, symptom severity score and health-related quality-of-life score were not different between groups (symptom severity score: 16 [interquartile range, 6–22] for PVA vs 19 [interquartile range, 9–34] for TAGM, $P = .45$; health-related quality-of-life score: 93 [interquartile range, 80–97] for PVA vs 89 [interquartile range, 84–96] for TAGM, $P = .41$).
- Changes in neutrophil-to-lymphocyte ratio from before to 24 hours after UAE were greater in the PVA group (3.9 [interquartile range, 2.7–6.8] for PVA and 2.5 [interquartile range, 1.5–4.6] for TAGM; $P = .02$).
- Rates of complete dominant fibroid necrosis were not different between groups, but transient global uterine ischemia of normal myometrium was more frequent in the PVA group (44% vs 15%; $P = .04$).

Conclusion:

When used in UAE, PVA particles and TAGM resulted in similar pain scores and fentanyl dose. PVA resulted in a greater inflammatory response, higher rates of rescue analgesic use, and more frequent transient global uterine ischemia.

Before using, refer to Instructions for Use (IFU) for indications, contraindications, warnings, precautions, and directions for use.



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