

Amnion-Based Injections in the Shoulder

<https://clinicaltrials.gov/ct2/show/NCT03770546>

ClinicalTrials.gov Identifier: NCT03770546

Recruitment Status : Not yet recruiting

First Posted : December 10, 2018

Last Update Posted : March 6, 2020

Sponsor:

University of Alabama at Birmingham

Information provided by (Responsible Party):

Brent Ponce MD, University of Alabama at Birmingham

Study Description

Brief Summary:

Osteoarthritis (OA) of the shoulder is a common debilitating condition affecting up to 5% of the general population and as much as 32% of patients over 60 years of age. Clinically, OA is diagnosed by a combination of symptoms, such as slow onset of progressively worsening shoulder pain and stiffness over months to years (often with a history of minor trauma), and pain with activity. Physical exam may show tenderness and swelling, muscle atrophy, and decreased range of motion. Adhesive capsulitis (also called "Frozen Shoulder") is another common shoulder condition, affecting 2-5% of the general population. Frozen shoulder presents with a similar combination of symptoms, such as inability to sleep on the side of the affected shoulder, shoulder pain, and pain at extremes of active and passive range of motion.

Despite the ubiquitous nature of these conditions, various non-operative treatment modalities have been employed in their managements without a clearly superior alternative. The usual initial treatment strategy for both of these conditions is the same: a trial of conservative management. Conservative management includes physical therapy, supervised neglect, over-the-counter pain medications (including NSAIDs, like Advil), oral and intra-articular corticosteroid use (steroids), hydrodilatation (capsular distension to rupture), intra-articular hyaluronic acid injections. Despite several years of employing different modes of treatment, there is no evidence that places one treatment modality over the others, and patients will often need surgery.

Amniotic fluid's apparent ability to improve blood flow, re-organize collagen, and protect cartilage makes it theoretically ideal for disorders like osteoarthritis and frozen shoulder. In recent studies, it has shown efficacy in promoting ligament healing in the knee and promoting tendon and degenerative joint pain reduction and functional improvement. It has been useful as a material for cartilage repair when used as a scaffold. Intra-articular amnion membrane injection may have favorable outcomes in patients with osteoarthritis of the shoulder or frozen shoulder. To test this hypothesis, intra-articular amnion will be injected into the shoulders of 20 patients with moderate to severe osteoarthritis and 20 patients with frozen shoulder. The hypothesis is that improvement in short-term outcomes (pain, function, and range of motion) will be identified following amnion injection in these patients. The goal of this study is to lead to larger randomized controlled trials evaluating amnion against current forms of treatment for osteoarthritis.

Condition or disease	Intervention/treatment	Phase
Osteoarthritis of the Shoulder Adhesive Capsulitis	Biological: Amnion Injection Drug: Betamethasone injection	Not Applicable

Detailed Description:

Amnion injections are commonly performed by community orthopaedic surgeons for many conditions, including osteoarthritis, rotator cuff tears, tendinitis, and others. Human placental tissue has been reported to contain biochemical and immunologic properties that play key roles in regulation of the inflammation-healing cycle. Amnion-chorion membrane has been shown to contain high concentrations of collagens, transforming growth factor beta suppressors, and inhibitors of matrix metalloproteinases that provide strong scaffolding, suppress scar formation, and regulate tissue remodeling, respectively. The amnion injection is a morselized, flowable tissue allograft derived from human amniotic tissues. The amniotic tissue comes from placenta, donated by pre-screened healthy women undergoing scheduled C-sections. It is processed into a form that can be injected.

Similarly, in a recent study injection of micronized dehydrated human amnion-chorion membrane slowed the development of cartilaginous lesions and led to a decreased number of erosions in a rat model of osteoarthritis. There is also an emerging body of literature investigating its use in osteoarthritis of the knee, with promising early results. In one study human amniotic suspension allograft was injected into patients with symptomatic knee osteoarthritis. No significant reactions were noted and the feasibility of injection for treatment of the osteoarthritis in the knee was demonstrated. Another study found that human amniotic fluid had a positive effect on tibia fracture healing through a rat model. In an osteoarthritis model, injection demonstrated attenuation of cartilage destruction and significant increases in cartilage thickness and volume. Finally, patients with plantar fasciitis noted significant improvement in symptoms, and American Orthopaedic Foot and Ankle Society Hindfoot scores (pain, function, alignment) compared to controls. These studies suggest the safety and efficacy of amnion-based injections in treating specific orthopaedic pathologies.

Osteoarthritis and adhesive capsulitis are two common pathologies of the shoulder. There is a variety of options for conservative management including physical therapy, pain medications, and injections, but no evidence that places one modality over another. The purpose of this study is to evaluate the effectiveness of amniotic fluid injection in treating these pathologies. In this study intra-articular amnion will be injected into the shoulders of patients with moderate to severe osteoarthritis and patients with frozen shoulder and assessing pain, function and range of motion over time.

Study Design

Study Type : Interventional (Clinical Trial)

Estimated Enrollment : 80 participants

Allocation: Randomized

Intervention Model: Parallel Assignment

Masking: Single (Outcomes Assessor)

Primary Purpose: Treatment

Official Title: Amnion-Based Injections in the Shoulder for Adhesive Capsulitis and

Estimated Study Start Date : July 2020

Estimated Primary Completion Date : December 2021

Estimated Study Completion Date : January 2022

Resource links provided by the National Library of Medicine



[MedlinePlus Genetics](#) related topics: [Osteoarthritis](#)

[MedlinePlus](#) related topics: [Osteoarthritis](#)

[Drug Information](#) available for: [Betamethasone](#)

[U.S. FDA Resources](#)

Arms and Interventions

Arm	Intervention/treatment
Experimental: Osteoarthritis - Amnion Injection BioDRestore Elemental Tissue Matrix is a morselized, flowable tissue allograft derived from human amniotic tissues.	Biological: Amnion Injection Per the manufacturer, this is considered an injection of tissue/organic matter.

Arm	Intervention/treatment
Active Comparator: Osteoarthritis - Betamethasone Injection Betamethasone Sodium Phosphate and Betamethasone Acetate injection (To clarify, this is one formulation/injected solution, not separate solutions/interventions)	Drug: Betamethasone injection Routine steroid injection for these pathologies. Betamethasone Sodium Phosphate and Betamethasone Acetate injection.
Experimental: Adhesive Capsulitis - Amnion Injection BioDRestore Elemental Tissue Matrix is a morselized, flowable tissue allograft derived from human amniotic tissues.	Biological: Amnion Injection Per the manufacturer, this is considered an injection of tissue/organic matter.
Active Comparator: Adhesive Capsulitis - Betamethasone Injection Betamethasone Sodium Phosphate and Betamethasone Acetate injection (To clarify, this is one formulation/injected solution, not separate solutions/interventions)	Drug: Betamethasone injection Routine steroid injection for these pathologies. Betamethasone Sodium Phosphate and Betamethasone Acetate injection.

Outcome Measures

Primary Outcome Measures :

1. Range of Motion [Time Frame: 0-12 months after injection]

Measured via goniometer

2. Strength [Time Frame: 0-12 months after injection]

Measured via dynamometer

Secondary Outcome Measures :

1. Shoulder Pain and Disability Index for shoulder pain and function [Time Frame: 0-12 months after injection]

Patient reported outcome measure of shoulder pain and function. Score is between 0% and 100%. There are 5 questions in on the pain scale and 8 questions on the disability scale, each rated from 0-10. Pain score is the sum of the ratings of the 5 question out of 50 converted to a percentage (0-100%). Disability score is the sum of the ratings of the 8 questions out of 80 converted to a percentage (0-100%). The overall score is a sum of the ratings for all 13 questions out of 130 converted to a percentage (0-100%). A higher score indicates worse outcomes.

2. Short-Form Health Survey 36 for physical health, mental health, pain and limitation of activities [Time Frame: 0-12 months after injection]

Patient reported outcome measure of physical health, mental health, pain and limitation of activities. There is a physical health score and mental health score, each a number from 0-100. A higher score indicates better health.

3. American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form of shoulder function [Time Frame: 0-12 months after injection]

Patient reported outcome measure assessing shoulder function with a score between 0 and 100. A higher score represents better shoulder function.

4. Simple Shoulder Test of shoulder function [Time Frame: 0-12 months after injection]

Patient reported outcome measure of shoulder function. It is a set of 12 yes/no questions. The score is calculated as the number of "yes" response out of 12 converted to a percentage (0-100%). A higher score represents better shoulder function.

5. Disabilities of the Arm, Shoulder, and Hand Questionnaire of arm, shoulder, and hand function [Time Frame: 0-12 months after injection]

Patient reported outcome measure assessing arm, shoulder, and hand function. This is a score ranging from 0-100 with a higher score indicating worse function of the upper extremities.

6. Visual Analog Scale for Pain [Time Frame: 0-12 months after injection]

Patient reported outcome measure assessing pain with a scale from 0-100, a higher score indicating greater pain.

Eligibility Criteria

Information from the National Library of Medicine

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 100 Years (Adult, Older Adult)
Sexes Eligible for Study:	All
Accepts Healthy Volunteers:	No

Criteria

Inclusion Criteria:

- Age 18 years or greater
- Clinical diagnosis of adhesive capsulitis, clinically in the frozen phase at the time of enrollment OR Clinical diagnosis of osteoarthritis of the shoulder.
- Symptoms for 2-6 months
- Failure of conservative management.
- > 25% reduction in active range of motion in $\geq 2/3$ planes of motion in the affected shoulder.
- No alternative medical explanation for symptoms

Exclusion Criteria:

- Alternative explanation for symptoms including neurological disorders, or like conditions
- Pregnancy or desire to become pregnant
- Discretion of the enrolling clinician

Exclusion in Amnion Injection Group:

- Intra-articular steroid injection within 6 months of enrollment or surgical intervention in the within 12 months of enrollment in affected shoulder

Contacts and Locations

Go to ▼

Information from the National Library of Medicine

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): **NCT03770546***

Contacts

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Sponsors and Collaborators

University of Alabama at Birmingham

More Information

Publications:

Bal A, Eksioglu E, Gulec B, Aydog E, Gurcay E, Cakci A. Effectiveness of corticosteroid injection in adhesive capsulitis. *Clin Rehabil*. 2008 Jun;22(6):503-12. doi: 10.1177/0269215508086179.

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First Posted:	December 10, 2018 Key Record Dates
Last Update Posted:	March 6, 2020
Last Verified:	March 2020

Individual Participant Data (IPD) Sharing Statement:

Plan to Share IPD:	No
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Studies a U.S. FDA-regulated Drug Product:	No
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Studies a U.S. FDA-regulated Device Product:	No
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Additional relevant MeSH terms:

Osteoarthritis	Anti-Inflammatory Agents
Bursitis	Glucocorticoids
Arthritis	Hormones
Joint Diseases	Hormones, Hormone Substitutes, and Hormone Antagonists
Musculoskeletal Diseases	Physiological Effects of Drugs
Rheumatic Diseases	Anti-Asthmatic Agents
Betamethasone	Respiratory System Agents