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Efficacy of intra-articular collagen injection in patients with knee joint pain compared to normal saline injection

Submission date
13/02/2019

Recruitment status
No longer recruiting

Registration date
19/02/2019

Overall study status
Completed

Last Edited
18/02/2019

Condition category
Musculoskeletal Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
Articular cartilage protects the joint and enables smooth movement. The articular cartilage can be damaged by external force or degraded by excessive movements. Damaged/degraded articular cartilage causes disruption in the collagen network that composes the articular cartilage. Initially people will only feel slight discomfort when they use the joint, but the pain will gradually increase, and if left untreated, it can eventually lead to needs for total knee arthroplasty (replacement). Unfortunately, the natural healing capacity of articular cartilage is very low, but there is still no definite treatment to solve it. Intra-articular injection is one of the most popular treatments for joint pain. Several agents are used for intra-articular injection, such as corticosteroid, platelet-rich-plasma, hyaluronic acid, etc. However, although collagen is the main components of articular cartilage, it is rarely used in intra-articular injection for treatment of knee joint pain. This study aims to compare the effectiveness and safety of intra-articular injection of CartiZol (type I atelocollagen) for treatment of knee joint pain. The study's findings should suggest other alternative treatment to control knee joint pain.

Who can participate?
Patients over the age of 19 who have knee joint pain

What does the study involve?
Participants who are willing to enter this study must pass the screening test, which will be examined by a physician. Participants who pass the screening are randomly allocated to one of two groups. Participants in one group receive intra-articular injection of CartiZol (type I atelocollagen) to the knee with pain. Patients in other group receive intra-articular injection of saline to the knee with pain. A dose of 3 mL is injected for only one time. Participants are asked to meet the physicians at 4, 12, and 24 weeks for their clinical evaluation.

What are the possible benefits and risks of participating?
The possible benefits of this study include a reduction in pain and an improvement in mobility.

The risks of participating include pain at the site of injection and rarely an allergic response to the treatment. It is possible that the injection will not reduce pain or improve mobility of the affected joint.

Where is the study run from?
Five hospitals in South Korea take part in this study: Yeouido St. Mary's Hospital, Konkuk University Medical Center, Samsung Medical Center, Seoul St. Mary's Hospital, and Chung-Ang University Hospital.

When is the study starting and how long is it expected to run for?
March 2014 to March 2016

Who is funding the study?
This clinical trial is funded by Sewon Cellontech Co., Ltd. (South Korea) who is also the manufacturer of CartiZol (type I atelocollagen)

Who is the main contact?
Andrew S. Kwak
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Contact information

Type(s)
Public

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
01CTZ

Study information

Scientific Title
A double-blind, randomized, post-marketing surveillance to evaluate the efficacy of intra-articular collagen injection in patients with knee joint pain compared to normal saline injection

Study objectives
For the treatment of knee pain, intra-articular injection of CartiZol (type I atelocollagen) will have a better impact in reducing pain than intra-articular injection of saline.

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Yeouido St. Mary's Hospital, 10, 63-ro, Yeongdeungpo-gu, Seoul, Republic of Korea, 07345, Tel: +82 (0)2 3779 2011, Email: sirb@catholic.ac.kr, 11/03/2014, ref: XC14DSMI0001S
2. Seoul St. Mary’s Hospital, 222, Banpo-daero, Seocho-gu, Seoul, Republic of Korea, 06591, Tel: +82 (0)2 2258 8194, Email: irbcumc@catholic.ac.kr, 14/01/2014, ref: XC14DSMI0001K
3. Samsung Medical Center, 81, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea, 06351, Tel: +82 (0)2 3410 1849, Email: eirbsmc@naver.com, 10/03/2014, ref: SMC2014-01-109
4. Konkuk University Medical Center,120-1, Neungdong-ro, Gwangjin-gu, Seoul, Republic of Korea, 05030, Tel: +82 (0)2 2030 6522, Email: 20110360@kuh.ac.kr, 20/02/2014, ref: KUH1060071
5. Chung-Ang University Hospital, 102, Heukseok-ro, Dongjak-gu, Seoul, Republic of Korea, 06973, Tel: +82 (0)2 6299 2738, Email: kju9709@naver.com, 18/04/2014, ref: C2014013(1209)

Study design
Interventional multicentre double-blinded randomized controlled study

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet

Health condition(s) or problem(s) studied
Chondromalacia, osteoarthritis, traumatic arthritis

Interventions
Masking of the treatments was done by concealing the contents of the syringe when it was administered to the patients. Allocation of the patient into experimental group and control group was done by computational system prepared by the specialist.

1. Experimental group: Patients receive intra-articular injection of CartiZol (type I atelocollagen). Dose of administration was 3 ml, and it was administered at the beginning of the trial for one time.
2. Control group: Patients receive intra-articular injection of saline. Dose of adminstration was 3 ml, and it was administered at the beginning of the trial for one time.

Participants are asked to meet the physicians at 4, 12, and 24 weeks for their clinical evaluation.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
CartiZol (type I atelocollagen)

Primary outcome measure
Pain in the knee joint is measured using the 100mm visual analogue score (VAS) at 24 weeks after injection

Secondary outcome measures
1. Pain, stiffness, and physical function of the knee joint are measured using the Western Ontario and McMaster Universities Arthritis Index (WOMAC) at baseline, 4 weeks, 12 weeks, and 24 weeks
2. Quality of life is measured using the 36-ltem Short-Form Health Survey (SF-36) at baseline, 4 weeks, 12 weeks, and 24 weeks
3. Satisfaction level with improvement of the knee measured by patient self-evaluation at 4 weeks, 12 weeks, and 24 weeks
4. Satisfaction level with improvement of the patient's knee measured by physician evaluation at 4 weeks, 12 weeks, and 24 weeks
5. Patients' physical condition under 24 pre-specified categories assessed by physical examination at baseline, 4 weeks, 12 weeks, and 24 weeks
6. Pain on the knee joint measured using the 100mm visual analogue score (VAS) at baseline, 4 weeks, and 12 weeks

Overall study start date
10/03/2014

Completion date
07/03/2016

Eligibility

Key inclusion criteria
1. Adult patients aged 19 or older
2. Patients with knee joint pain due to chondromalacia, osteoarthritis (OA), or traumatic arthritis (TA)
3. Patients with 3 or lower score in the Kellgren-Lawrence grade
4. Patients with 40 mm or higher scores in the 100 mm VAS pain scale

5. Patients without significant pathological tests at their screening visit
6. Patients whose medication is confirmed within one week from their study enrolment and who agreed to maintain the medication dose during the study period if they need to keep taking it
7. When combination drugs are administered, considering the period of the drugs remaining in the body, patients who take the drugs stably for 2 weeks prior to participating in the trial (based on the screening, if it is confirmed that the patients took the drugs stably for 1 week prior to the screening, at the enrollment for injection, it should be assessed again, and the patients who are confirmed to have taken the drugs stably for 2 weeks prior to the trial could be registered)
8. Patients who, after taking drugs for anesthetic purposes (provided to the subject after the injection) within one week after the intra-articular injection, agreed to take anti-inflammatory agents for no more than 5 consecutive days and for no more than 10 days in a month, and could stop taking the drugs within 2 days after the next visit even if the pain in the observation site becomes severe and thus additional drugs are required
9. Patients who agreed to use only the non-drug treatments (i.e., physiotherapy, osteopathy, and chiropractic therapy) allowed by the study investigators (Acupuncture is not allowed)
10. Patients who agreed to receive the injection only in one knee when they feel pain on both knees (The other knee can be treated with prescribed drugs, but articular injections are not allowed)
11. Patients or their representative (for adults) who agreed to participate in the study and signed the informed consent form

Participant type(s)
Patient

Age group
Adult

Sex
Both

Target number of participants
200

Key exclusion criteria
1. Patients or their family members with a history of or an ongoing autoimmune disease
2. Patients with a history of anaphylactic response
3. Patients with hypersensitivity to grafting materials
4. Patients with hypersensitivity to porcine protein
5. Patient with grade 4 in the Kellgren-Lawrence grade
6. Patients with severe effusion
7. Patients who were injured severely or received injection in their affected knee within six months, which would make evaluation of the knee difficult
8. Patients with inflammatory arthritis such as rheumatoid arthritis, rupus arthrosis, or psoriatic arthritis
9. Patients who have gout or calcium pyrophosphate (pseudogout) disease that started within six months from the screening visit
10. Patients with a history of radiation therapy or cancer treatment within two years
11. Patients with diabetes
12. Patients with an infection that required hospitalization for antibiotics or the administration of antiseptic agents
13. Patients who have been undergoing adrenocortical hormone therapy

14. Patients with liver, heart, or kidney disease
15. Patients who had been infected with a virus
16. Patients who have a serious health condition that may affect the study results
17. Patients who are pregnant, breastfeeding, or planning to become pregnant
18. Patients who are considered inappropriate for participation in this study due to their condition (e.g., a mental illness) based on the investigator's judgment
8-15: The investigator can decide whether or not the patient will be administered the injection

Date of first enrolment
08/07/2014

Date of final enrolment
29/01/2015

Locations

Countries of recruitment
Korea, South

Study participating centre
Samsung Medical Center
Seoul
Korea, South
06351

Study participating centre
Yeouido St. Mary's Hospital
Seoul
Korea, South
07345

Study participating centre
Seoul St. Mary's Hospital
Seoul
Korea, South
06591

Study participating centre
Chung-Ang University Hospital
Seoul
Korea, South
06973

Study participating centre
Kunkuk University Medical Center
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Sponsor information

Organisation
Sewon Cellontech Co., Ltd.

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Sponsor type
Industry

ROR
https://ror.org/02rxx7m82

Funder(s)

Funder type
Industry

Funder Name
Sewon Cellontech Co., Ltd

Results and Publications

Publication and dissemination plan
After the completion of the study, its results will be submitted for publication by SCI or SCI(e) scientific journal.

Intention to publish date

01/07/2019

Individual participant data (IPD) sharing plan

For the participant level data (DataSet), contact needs to be made to Andrew Kwak (askwak@swcell.com) who will direct it to Sewon Cellontech's CRO department. Official request for the DataSet is required, and the sponsor (Sewon Cellontech Co., Ltd.) and PIs need to agree upon the request. Then, formal agreement needs to be made between sponsor and the party who request the DataSet. In the agreement, range of the data, intended use with the data (purpose), the duration, etc. will be discussed, and upon signing of the agreement, coded data (demographic, efficacy, and safety) and information to decipher the code will be sent.

IPD sharing plan summary

Available on request