Synovial fluid concentrations of PGE-2, CTX-I, CTX-II and COMP in the osteoarthritic temporomandibular joint compared to the knee joint

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The objective of this study is to increase insight in the pathological processes involved in TMJ OA compared to physiologic processes in healthy TMJs and OA of the knee by determining the concentration of PGE-II, CTX-I, CTX-II and COMP in synovial…

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Joint disorders
Study type	Observational invasive

Summary

ID

NL-OMON34304

Source
ToetsingOnline

Brief title
PGE-2, CTX-I, CTX-II and COMP in OA of the TMJ compared to OA of the knee

Condition

- Joint disorders

Synonym
fibrocartilage breakdown, osteoarthritis

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: CTX-I, PGE-2, synovial fluid, temporomandibular joint

Outcome measures

Primary outcome

Main parameters of this study are concentrations of PGE-2, CTX-I en II en COMP

in synovial fluid of the TMJ and the knee.

Secondary outcome

Additionally pain is measured by patients with arthritic joints using a visual

analogue scale (VAS) and maximum mouth opening (MMO in mm) in order to

investigate the correlation between the measured concentrations and the

clinical symptoms.

Study description

Background summary

Osteoarthritis (OA) is the most prevalent chronic disorder of the temporomandibular joint (TMJ) and is associated with significant pain and mandibular disability. OA is a degenerative process affecting the articular tissues. Eventually the disease leads to destruction of TMJ fibrocartilage and subchondral bone. The TMJ is a load-bearing synovial joint, basically similar to other load-bearing joints, although the fibrocartilage of the healthy TMJ consists mainly of type I collagen, while most other synovial joints (like the knee joint), contain mostly hyaline cartilage which is build up with type II collagen.1, 2 In the affected joint, cartilage is demolished and partly replaced. In the TMJ collagen type I is partly replaced by collagen type II and in the knee joint the opposite seems to occur. During this process breakdown products are formed which collect within the joint space. Due to this, concentrations of several breakdown products change in the synovial fluid. Since the articular cartilage is one of the first tissues to be affected by the disease process, it is useful to measure changes in concentrations of breakdown products of this tissue. Important markers of cartilage break-down that appear

in the synovial fluid are C-terminal telopeptide collagen type I, C-terminal telopeptide collagen type II (CTX-I and CTX-II, respectively) and cartilage oligomeric matrix protein (COMP).3 Furthermore prostaglandin E II (PGE-II) is a rather specific marker for arthritis intensity.4 Measurement of these concentrations of these substances and comparison to concentrations in the synovial fluid of healthy TMJs could provide insight into the amount of fibrocartilage breakdown and inflammation. Comparison of these concentrations to the arthritic knee joint could reflect the level of agreement with osteoarthritis in the knee. This allows an assessment of the applicability to the TMJ of outcomes of research performed in the knee joint.

Study objective

The objective of this study is to increase insight in the pathological processes involved in TMJ OA compared to physiologic processes in healthy TMJs and OA of the knee by determining the concentration of PGE-II, CTX-I, CTX-II and COMP in synovial fluid of the arthritic TMJ and comparing these concentrations with corresponding concentrations in synovial fluid of healthy joints and synovial fluid of the arthritic knee joint.

Study design

This study is a matched case-control study.

Study burden and risks

na

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Healthy TMJ synovial fluid:
- Patients of the UMCG department of Oral and Maxillofacial Surgery
- Patients undergoing surgery in the TMJ region with symptom free TMJs
- No history of arthropathy
- 20-40 years of age;Synovial fluid obtained from TMJs with OA
- Patient of the UMCG department of Oral and Maxillofacial Surgery
- Patients with OA of the TMJ undergoing arthrocentesis
- 20-40 years of age;Synovial fluid obtained from knee joints with OA
- Patients of the UMCG department of Orthopaedics
- Patients with OA of the knee

Exclusion criteria

Synovial fluid obtained from TMJs
- History of surgery in the TMJ region
- History or active presence of other rheumatic diseases that could be responsible for secondary osteoarthritis
- Severe articular inflammation as confirmed by physical examination
- Traumatic lesions of the TMJ
- Self reported pregnancy;Synovial fluid obtained from knee joints
- History of intra-articular surgery of the knee
- History or active presence of other rheumatic diseases that could be responsible for secondary osteoarthritis
- Severe articular inflammation as confirmed by physical examination
- Traumatic knee lesions
- Self reported pregnancy

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-09-2010
Enrollment:	90
Type:	Anticipated

Ethics review

Approved WMO

Date:	14-07-2010
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL32276.042.10