

PLEASE NOTE: *This trial has been registered retrospectively.*

Trial Description

Title

Value of ultrasound in hemochromatosis associated arthropathy

Trial Acronym

[---]*

URL of the trial

[---]*

Brief Summary in Lay Language

Hereditary hemochromatosis (HH) is an autosomal-recessive inherited iron overload disease caused by a mutation of the HFE gene. Patients may present with hepatomegaly, hypogonadism, skin hyperpigmentation and/or diabetes.

Arthropathy occurs in two thirds of HH patients and has a significant impact on quality of life. HH arthropathy usually resembles osteoarthritis (OA), however, joint symptoms manifest earlier and are characterized by intermittent arthritis of metacarpophalangeal joints (MCP), wrists, hips, knee and/or ankle. Regular phlebotomy does not improve joint symptoms and the value of anti-inflammatory agents to modify pain and/or the disease course is elusive so far.

Histological studies demonstrated inflammatory synovitis in a proportion of patients and imaging methods might be useful to identify these HH patients with inflammatory joint disease. Musculoskeletal ultrasound is well established in rheumatoid arthritis, chondrocalcinosis, OA and other rheumatic diseases; however, in HH arthropathy no study has been performed to investigate the value of this technique to detect structural and inflammatory lesions so far.

The primary hypothesis of this study is that joint inflammation is detected more frequently by ultrasound [defined as synovial hypertrophy and/or effusion (SH/E) by B-mode and/or hypervascularisation by Power Doppler (PD)] than by clinical examination (defined as synovial swelling). Secondary objectives are the correlation between ultrasound and clinical findings, the comparison of structural lesions identified by sonography and by x-ray as well as the comparison of ultrasound findings between HH arthropathy and hand OA. The results of this study could guide future treatment decisions in HH arthropathy regarding the use of anti-inflammatory agents (that might be more effective in cases with verified synovitis) and might reveal HH arthropathy specific ultrasound findings improving the diagnostic work-up of the disorder in the future.

According to the power analysis we plan to recruit 35 patients with HH arthropathy, 35 HH patients without arthropathy and 35 hand OA patients. Patients undergo structured history and clinical examination, routine blood tests as well as x-rays of hands, hips, knees and ankles. In addition ultrasound examination of 36 joints [bilateral wrists, MCP, proximal (PIP), distal interphalangeal joints (DIP), hip, knee and ankle joints] is performed to address inflammatory and structural changes.

Taken together, this study investigates the value of musculoskeletal sonography

to assess inflammatory and structural lesions in patients with HH arthropathy.

Brief Summary in Scientific Language

Aim of the study: To investigate the Value of musculoskeletal sonography on patients with Hereditary hemochromatosis (HH)

Background: HH is an autosomal-recessive inherited iron overload disease caused by a mutation of the HFE gene. Patients may present with hepatomegaly, hypogonadism, skin hyperpigmentation and/or diabetes. Arthropathy occurs in two thirds of HH patients and has a significant impact on quality of life. HH arthropathy usually resembles osteoarthritis (OA), however, joint symptoms manifest earlier and are characterized by intermittent arthritis of metacarpophalangeal joints (MCP), wrists, hips, knee and/or ankle. Regular phlebotomy does not improve joint symptoms and the value of anti-inflammatory agents to modify pain and/or the disease course is elusive so far. Histological studies demonstrated inflammatory synovitis in a proportion of patients and imaging methods might be useful to identify these HH patients with inflammatory joint disease. Musculoskeletal ultrasound is well established in rheumatoid arthritis, chondrocalcinosis, OA and other rheumatic diseases; however, in HH arthropathy no study has been performed to investigate the value of this technique to detect structural and inflammatory lesions so far.

Hypothesis: The primary hypothesis of this study is that joint inflammation is detected more frequently by ultrasound [defined as synovial hypertrophy and/or effusion (SH/E) by B-mode and/or hypervascularisation by Power Doppler (PD)] than by clinical examination (defined as synovial swelling). Secondary objectives are the correlation between ultrasound and clinical findings, the comparison of structural lesions identified by sonography and by x-ray as well as the comparison of ultrasound findings between HH arthropathy and hand OA. The results of this study could guide future treatment decisions in HH arthropathy regarding the use of anti-inflammatory agents (that might be more effective in cases with verified synovitis) and might reveal HH arthropathy specific ultrasound findings improving the diagnostic work-up of the disorder in the future.

Methods: According to the power analysis we plan to recruit 35 patients with HH arthropathy, 35 HH patients without arthropathy and 35 hand OA patients. Patients undergo structured history and clinical examination, routine blood tests as well as x-rays of hands, hips, knees and ankles. In addition ultrasound examination of 36 joints [bilateral wrists, MCP, proximal (PIP), distal interphalangeal joints (DIP), hip, knee and ankle joints] is performed to address inflammatory and structural changes.

Organizational Data

- DRKS-ID: **DRKS00005453**
- Date of Registration in DRKS: **2013/11/19**
- Date of Registration in Partner Registry or other Primary Registry: [---]*
- Investigator Sponsored/Initiated Trial (IST/IIT): **yes**
- Ethics Approval/Approval of the Ethics Committee: **Approved**
- (leading) Ethics Committee Nr.: **24-142 ex11/12 , Ethikkommission der Medizinischen Universität Graz**



Secondary IDs

Health condition or Problem studied

- ICD10: **E83.1 - Disorders of iron metabolism**
- Free text: **haemochromatosis**
- ICD10: **M15-M19 - Arthrosis**

Interventions/Observational Groups

- Arm 1: **The following patients' groups undergo ultrasound examination of 38 joints:**
 - 1) patients with hereditary hemochromatosis associated arthropathy**
 - 2) patients with hereditary hemochromatosis without arthropathy**
 - 3) patients with osteoarthritis**

Characteristics

- Study Type: **Non-interventional**
- Study Type Non-Interventional: **Other**
- Allocation: **Single arm study**
- Blinding: [---]*
- Who is blinded: [---]*
- Control: **Uncontrolled/Single arm**
- Purpose: **Basic research/physiological study**
- Assignment: **Single (group)**
- Phase: **N/A**
- Off-label use (Zulassungsüberschreitende Anwendung eines Arzneimittels): **N/A**

Primary Outcome

Joint inflammation is detected more often by ultrasound [defined as synovial hypertrophy and/or effusion (SH/E) by B-mode and/or hypervascularisation by Power Doppler (PD)] than by clinical examination (defined as synovial swelling) in patients with HH arthropathy

Secondary Outcome

- 1. Joint inflammation as indicated by ultrasound correlates with pain levels (measured by a visual analogue scale ranging from 0-100mm), the number of tender joints and restriction of functionality as measured by the health assessment questionnaire**
- 2. Ultrasound more frequently detects structural lesions (erosions and/or osteophytes) than conventional x-ray**
- 3. Inflammatory and structural lesions at hand and finger joints detected by sonography in HH arthropathy patients differ from those of HH patients without arthropathy and hand OA patients**

Countries of recruitment

- AT **Austria**

Locations of Recruitment

- Medical Center **Medizinische Universität Graz, Graz**
- Medical Center **Hanusch Krankenhaus, Wien**
- Medical Center **Krankenhaus Oberndorf, Oberndorf**

Recruitment

- Planned/Actual: **Actual**
- (Anticipated or Actual) Date of First Enrollment: **2012/02/01**
- Target Sample Size: **105**
- Monocenter/Multicenter trial: **Multicenter trial**
- National/International: **National**

Inclusion Criteria

- Gender: **Both, male and female**
- Minimum Age: **18 Years**
- Maximum Age: **89 Years**

Additional Inclusion Criteria

**Male or female patient ≥ 18 years and < 90 years of age
HH (with or without arthropathy) as defined below OR hand OA as defined by the
American College of Rheumatology (ACR) criteria without evidence of HH**



Exclusion criteria

Current treatment with any investigational drug
Complete destruction of joints to be investigated by sonography

Addresses

■ Primary Sponsor

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Sources of Monetary or Material Support

- **Public funding institutions financed by tax money/Government funding body (German Research Foundation (DFG), Federal Ministry of Education and Research (BMBF), etc.)**

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Status

- Recruitment Status: **Recruiting ongoing**
- Study Closing (LPLV): [---]*

Trial Publications, Results and other documents

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Date of Registration in DRKS: **2013/11/19**

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**Deutsches Register
Klinischer Studien**

German Clinical
Trials Register

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**** This entry means that data is not displayed due to insufficient data privacy clearing.*
