Hand osteoarthritis, pain and body weight

Associations and potential mechanisms

March 20th 2015

Karin Magnusson

Main supervisor: Kåre Birger Hagen
Co-supervisor: Ida Kristin Haugen

Diakonhjemmet Sykehus

UiO : Universitetet i Oslo

NKRR

Outline

- Background
- Aims
- Methods
- Results by paper
- Conclusions & Clinical implications

Background: Risk factors

Higher age

Female sex

Genetic factors

Local biomechanical factors

Hypermobility

Previous joint injury

High work load

Systemic factors

High BMI?

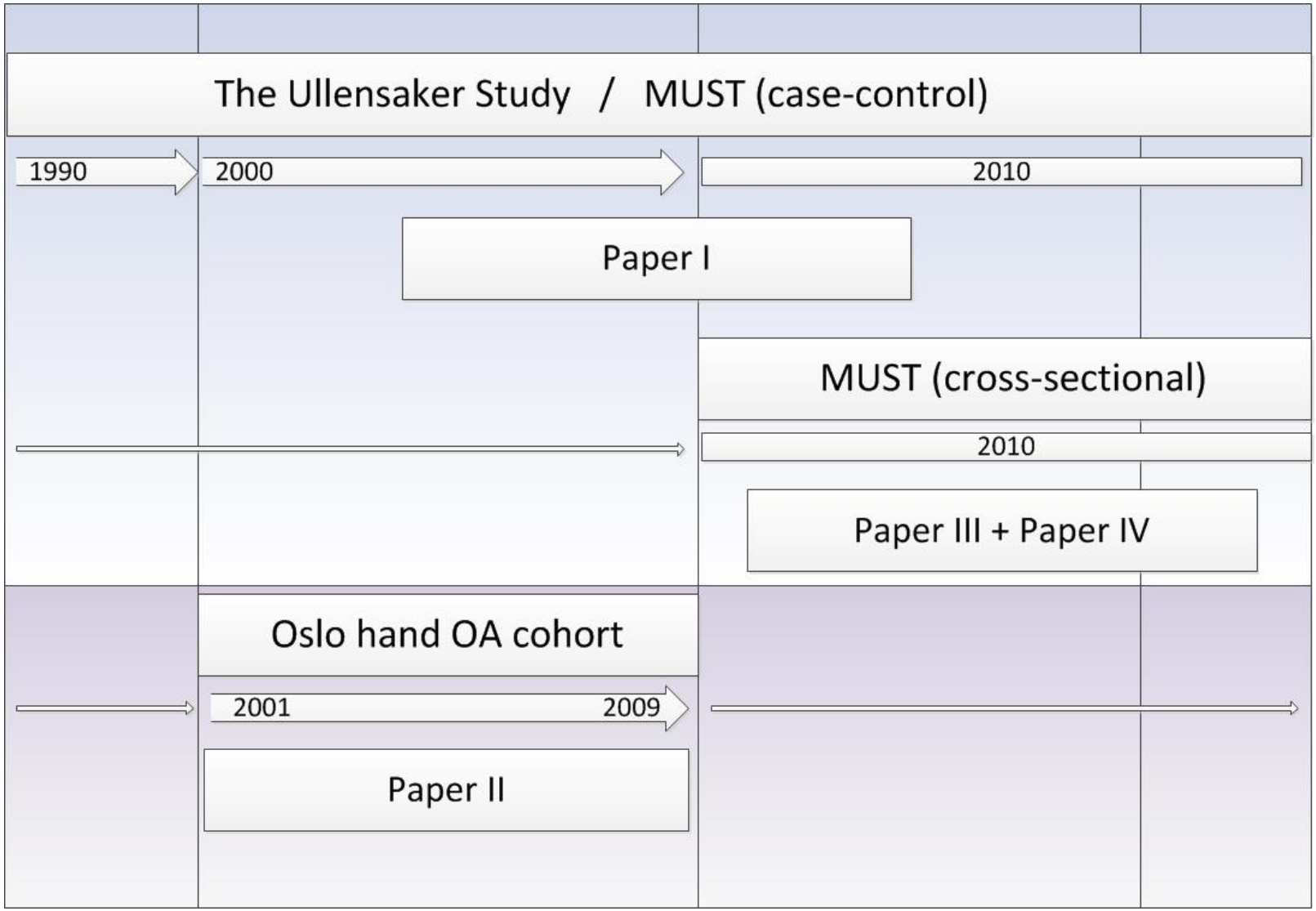
Metabolic factors?

(Haugen et al., 2011, Srikanth et al., 2009, Marshall et al., 2013, Spector et al., 1996, Jonsson et al., 2009, Jensen et al., 1999, Yusuf et al., 2011, Marshall et al., 2013)

Main aim

To investigate the associations between a high BMI and different hand OA outcomes, as well as to investigate the etiology of pain in hand OA, using observational data

Data collection and study design



Paper's order and aim

Paper's titles and clinical relevance (by size)

Paper I: Obesity -> clinical hand OA?

Scand J Rheumatol 2014;43:409–415 409

No strong relationship between body mass index and clinical hand osteoarthritis – results from a population-based case-control study

K Magnusson[1], N Østerås[1], IK Haugen[2], P Mowinckel[1], L Nordsletten[3], B Natvig[4], KB Hagen[1,5]

[1]Department of Rheumatology, National Resource Centre for Rehabilitation in Rheumatology, Diakonhjemmet Hospital, [2]Department of Rheumatology, Diakonhjemmet Hospital, [3]Orthopaedic Department, Oslo University Hospital, and Departments of [4]General Practice and [5]Health Sciences, Institute of Health and Society, University of Oslo, Norway

Paper II: Obesity -> progressive Radiographic hand OA + pain?

Scand J Rheumatol 2014;00:1–6 1

Body mass index and progressive hand osteoarthritis: data from the Oslo hand osteoarthritis cohort

K Magnusson[1,2], B Slatkowsky-Christensen[2], D van der Heijde[2,3], TK Kvien[2], KB Hagen[1,2], IK Haugen[2]

[1]National Advisory Unit on Rehabilitation in Rheumatology, [2]Department of Rheumatology, Diakonhjemmet Hospital, Oslo, Norway and [3]Department of Rheumatology, Leiden University Medical Centre, Leiden, The Netherlands

Paper III: Explanatory factors for hand OA pain?

Arthritis Care & Research
Vol. 67, No. 2, February 2015, pp 187–195
DOI 10.1002/acr.22460

ORIGINAL ARTICLE

Diabetes Is Associated With Increased Hand Pain in Erosive Hand Osteoarthritis: Data From a Population-Based Study

KARIN MAGNUSSON,[1] KÅRE BIRGER HAGEN,[2] NINA ØSTERÅS,[1] LARS NORDSLETTEN,[3] BÅRD NATVIG,[4] AND IDA K. HAUGEN[5]

Paper IV: The validity of self-reported BMI?

Magnusson et al. BMC Musculoskeletal Disorders 2014, 15:442
http://www.biomedcentral.com/1471-2474/15/442

BMC Musculoskeletal Disorders

RESEARCH ARTICLE Open Access

The validity of self-reported body mass index in a population-based osteoarthritis study

Karin Magnusson[1*], Ida K Haugen[2], Nina Østerås[1], Lars Nordsletten[3], Bård Natvig[4] and Kåre Birger Hagen[1,5]

Paper's order and aim

Paper's titles and clinical relevance (by size)

Paper III:
Explanatory factors for hand OA pain?

Arthritis Care & Research
Vol. 67, No. 2, February 2015, pp 187–195
DOI 10.1002/acr.22460

ORIGINAL ARTICLE

Diabetes Is Associated With Increased Hand Pain in Erosive Hand Osteoarthritis: Data From a Population-Based Study

KARIN MAGNUSSON,[1] KÅRE BIRGER HAGEN,[2] NINA ØSTERÅS,[1] LARS NORDSLETTEN,[3] BÅRD NATVIG,[4] AND IDA K. HAUGEN[5]

Participants in paper III

n=530 with radiographic OA (KLG≥2) in 1 or more finger joint

71% women

131 with erosive OA

399 with non-erosive OA

Results in paper III

Included covariates: Age, sex, education status, familial OA, physical acitivity level, smoking, alcohol consumption, BMI, hypertension, diabetes, widespread pain, mental distress, number of joints with synovitis, number of joints with KLG≥2

	Erosive OA		Non-erosive OA	
	AUSCAN pain B (95% CI)	NTJ B (95% CI)	AUSCAN pain B (95% CI)	NTJ B (95% CI)
Diabetes [0-1]	**3.81 (2.27, 5.35)**	**4.16 (2.01, 6.31)**	-0.42 (-1.85, 1.02)	0.90 (-0.65, 2.45)
SF-36 mental score [0-100]	-0.04 (-0.08, 0.01)	-0.02 (-0.08, 0,04)	**-0.06 (-0.11, -0.02)**	**-0.05 (-0.09, -0.01)**
No. of joints with synovitis [0-30]	**0.45 (0.19, 0.70)**	**0.55 (0.08, 1.02)**	0.24 (-0.93, 1.42)	0.64 (-0.11, 1.39)
No. of joints with KLG≥2 [0-30]	**0.17 (0.08, 0.25)**	**0.23 (0.10, 0.36)**	0.00 (-0.11, 0.12)	0.10 (-0.02, 0.22)

Conclusions of thesis

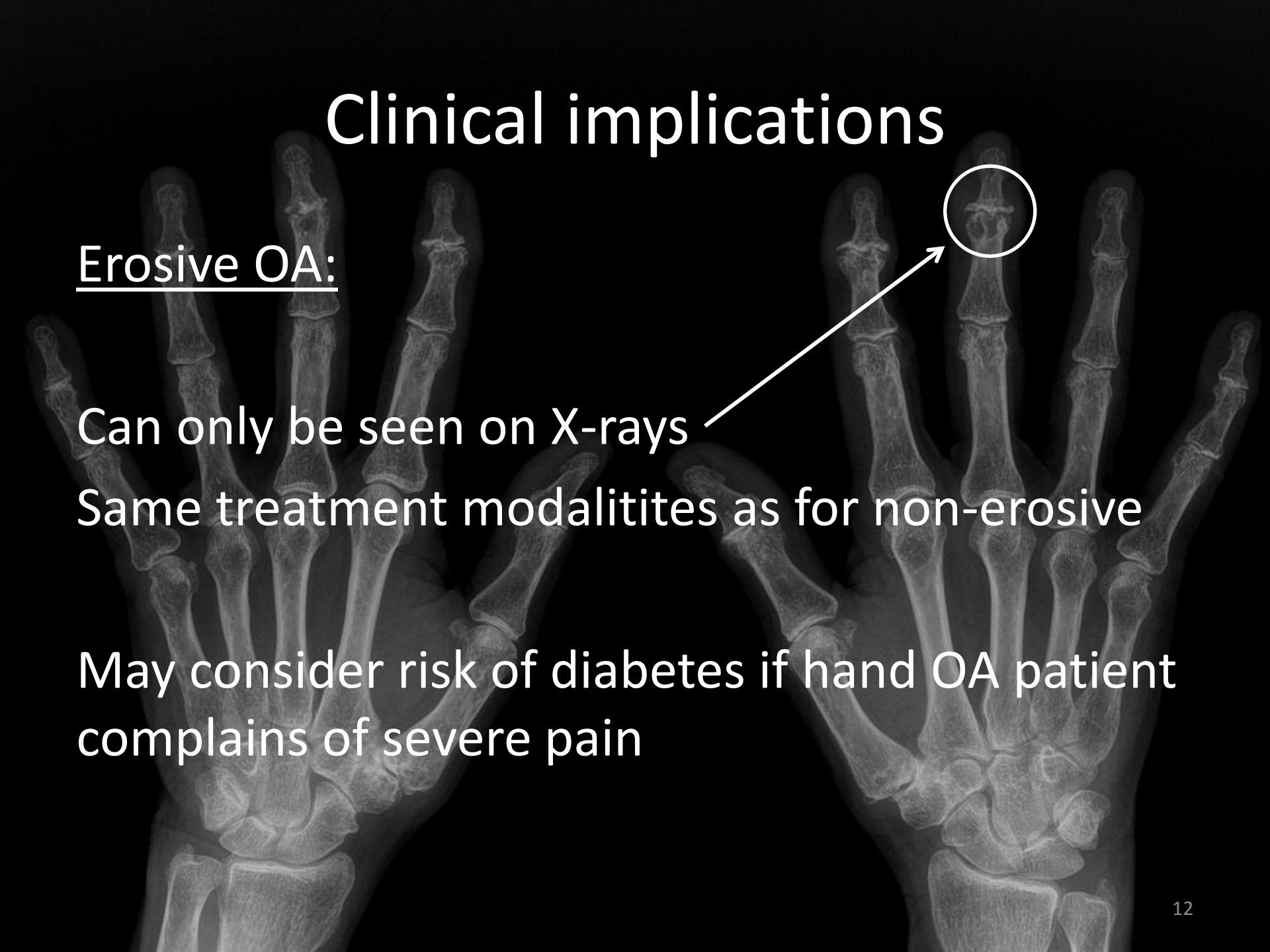
- A high BMI NOT associated with
  clinical/radiographic hand OA

However..

- A high BMI early in life may be associated with later clinical hand OA

- Diabetes associated with increased hand pain in erosive hand OA

Clinical implications



Erosive OA:

Can only be seen on X-rays

Same treatment modalitites as for non-erosive

May consider risk of diabetes if hand OA patient complains of severe pain

Ongoing work and future studies

The Dialong Hand Study: study radiographic OA and hand pain in persons with long-term type I diabetes (>40 years)

The New Oslo Hand Osteoarthritis Cohort: Quantitative Sensory Testing by algometer and pinprick

Twin registry linkage: Investigate genetic vs. environmental factors causing a clinically relevant OA diagnosis

Thank you!

Contact:
magnusson_karin@outlook.com

@karinmgnssn

forskerlivet.no
Løpende oppdatering. For folk flest.

EPINOR PhD School
and Research Network

HELSE SØR-ØST

UiO : Universitetet i Oslo

Diakonhjemmet Sykehus

NKRR