

Medical or Research Professionals/Clinicians

Topic area: Clinical topics by disease

Topic: 11. Rheumatoid arthritis - prognosis, predictors and outcome

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INCIDENCE OF KNEE AND HIP REPLACEMENTS IN RHEUMATOID ARTHRITIS PATIENTS FOLLOWING INTRODUCTION OF BIOLOGICAL DMARDS: AN INTERRUPTED TIME SERIES ANALYSIS USING NATIONWIDE HEALTH CARE REGISTERS

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My abstract has been or will be presented at a scientific meeting during a 12 months period prior to EULAR 2017: No
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Background: Previous data have been conflicting regarding a possible impact of treatment with biological DMARDs (bDMARDs) on the need for total knee replacement (TKR) and total hip replacement (THR) in patients with rheumatoid arthritis (RA)¹.

Objectives: To investigate impact of national guidelines recommending bDMARD treatment for RA on the secular trends of TKR and THR among incident RA patients compared with matched general population controls (GPC) in Denmark.

Methods: Nationwide register-based interrupted time-series analysis using the National Patient Register and Civil Registration System.

RA: incident patients diagnosed at a rheumatology department from 1996-2011.

GPC: 10 individuals matched to each RA patient on age, sex and municipality.

Outcome: First TKR and THR, respectively.

Intervention: introduction of bDMARDs and associated publication of bDMARD recommendations in Denmark in 2002.

Statistical analyses: 5-year age- and sex-standardised incidence rates of THR and TKR calculated for incident RA patients diagnosed biannually in 1996-2011, and GPCs. Secular trends in the pre-bDMARD guideline era (1996-2002) were compared with those in the bDMARD period (2003-2016) using segmented linear regression and a 1-year lag period (2002-03). Absolute changes in TKR and THR at the midpoint (February 2007) between guideline implementation and end of study period were estimated.

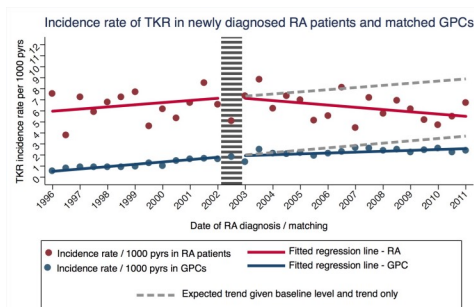
Results: In total, during 1996 to 2011, 30 868 incident RA patients were identified (mean age at diagnosis 58.3 years, 70% women) and compared with 301 527 GPCs. See Table for results.

Table: Changes in 5-year incidence rate of total hip (THR) or total knee replacement (TKR) in incident rheumatoid arthritis (RA) patients following introduction of biological DMARDs compared with secular trends in age, sex and municipality-matched general population controls (GPC).

Cohort		n	Baseline	Δ per year*	Δ in level	Δ per year
		THR /TKR	incidence rate / 1000 person years	pre-2002	2003	post-2003
TKR	RA	865	5.87	+0.19	-	-0.20
	GPC	2438	0.42	+0.21	-	+0.08
THR	RA	935	8.72	-0.38	+2.23	-0.38
	GPC	4744	2.89	+0.11	-	+0.02

Stepwise backward elimination to produce most parsimonious model: p-entry<0.05 and p-exit>0.2. * Δ per year based on biannual data.

Image/graph:



Conclusions: Prior to 2002, the incidence of TKR increased among RA patients, but started to decrease after introduction of bDMARDs and their associated guidelines in 2003 (absolute change -1.8 TKRs/1000 person years in Feb. 2007). In contrast, the incidence of TKR increased among GPCs throughout the entire study period. The incidence of THR increased in GPCs for the entire duration of the study period, whereas there was a downward going trend among RA patients, but with a surprising level increase in 2003. The overall patterns of our findings are in line with those recently reported from England and Wales¹.

References: ¹Hawley S, Cordtz R, Dreyer L, et al. *The Impact of Biologic Therapy Introduction on Hip and Knee Replacement Among Rheumatoid Arthritis Patients: An Interrupted Time Series Analysis Using the Clinical Practice Research Datalink. Arthritis Rheumatol* 2016;68.

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