Impact of Rheumatoid Arthritis on Health Care Costs and Work Productivity: A Comparative Assessment With Diabetes and Depression

THU0031

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Background

- Rheumatoid arthritis (RA) was recently reported to have societal costs in the United States of $19.3 billion and $39.2 billion (2005 US $) without and with intangible costs, respectively[1]
- Comparative assessments of the burden of RA on work productivity versus more prevalent chronic diseases may help put RA in perspective for health care policy and reimbursement decision-making

Objective

- To quantify incremental work absence and direct and indirect costs associated with RA compared with diabetes (DB) and depression (DP) among employed patients

Methods

- Employee records from multiple large employers in the United States providing data about demographics, job-related information, and health care use in the HCMS database were assessed from 1/1/2001 to 6/30/2010
- Patients with RA, DP, and DB were identified by ICD-9 codes
- For the disease cohorts, the date when the employee had the first medical claim for the disease was considered the index date
- Employees with >1 disease of interest were included in multiple disease cohorts accordingly
- Controls, identified as employees without the disease, were chosen with an index date by employer similar to the corresponding disease cohort
- Work absence and costs for the 12 months after each employee's index date were measured separately for the 3 disease/control cohort pairs
- All costs were adjusted to June 2010 US $

Methods (continued)

- Regression modeling was used to compare days absent and direct and indirect costs separately between each pair of disease/control cohorts controlling for age, gender, marital status, race, exempt status, full-time/part-time status, salary, location, and Charlson Comorbidity Index
- Incremental (disease minus control) days absent and costs for each disease were compared between diseases

Results

- Of >800,000 employees in the HCMS database, ~340,000 employees with ≥1 year of health plan enrollment after the index date were included in each study:
  - 0.8% (N = 2705) had RA (mean age = 45.1, 61.4% female, Modified Charlson Index = 0.477)
  - 6% (N = 20071) had DB (mean age = 46.1, 41.2% female, Modified Charlson Index = 0.340)
  - 6% (N = 21022) had DP (mean age = 30.4, 60.1% female, Modified Charlson Index = 0.249)
- Total incremental annual costs (icosts, **Table 1**):
  - Were greatest for RA ($5212): $1514 more than those for DB and $1197 more than those for DP
  - **Direct icosts were greatest for RA compared to DP and DB, these costs included both health care costs and prescription drugs. Indirect icosts of sick leave, short- and long-term disability**, and workers' compensation were greatest for employees with DP ($806) followed by those with RA ($525)
- The related overall incremental days (idays, **Table 2**) of absence were greatest for DP (6.42 idays), followed by RA (3.58 idays) and DB (2.73 idays)
- All comparisons were significant at p <0.05

Results (continued)

Table 1. Comparison of Differences in Annual Health Benefit Costs per Employee Between Diseases (During the Year Following Each Person's Index Date)

	Rheumatoid Arthritis vs. Non-Rheumatoid Arthritis			Diabetes vs. Non-Diabetes			Depression vs. Non-Depresssion			Comparisons of Incremental Differences Between Diseases		
Cost Category	N	Δ	SE	N	Δ	SE	N	Δ	SE	RA Δ - Diabetes Δ	RA Δ - Depression Δ	Diabetes Δ - Depression Δ
Health care	340740	$3145	$14	337317	$2357	$12	337716	$2296	$12	$788	$849	$61
Prescription drug	340740	$1542	$5	337317	$982	$4	337716	$913	$4	$560	$629	$69
Sick leave	146460	$145	$2	144755	$113	$2	144980	$254	$2	$31	-$110	-$141
Short-term disability	189665	$249	$5	186906	$187	$4	187377	$344	$5	$62	-$95	-$157
Long-term disability	249650	$41	$2	246819	$21	$2	247196	$92	$3	$20	-$50	-$70
Workers' compensation	314666	$90	$4	310828	$37	$3	311529	$116	$4	$53	-$26	-$79
Total		$5212			$3698			$4014		$1514	$1197	-$317

Table 2. Absence Day Differences: Comparison of Differences in Annual Absence Days per Employee Between Diseases (During the Year Following Each Person's Index Date)

	Rheumatoid Arthritis vs. Non-Rheumatoid Arthritis			Diabetes vs. Non-Diabetes			Depression vs. Non-Depresssion			Comparisons of Incremental Differences between Diseases					
Absence Category	N	Δ	SE	N	Δ	SE	N	Δ	SE	RA Δ - Diabetes Δ	P-Value[3] RA vs. Diabetes	RA Δ - Depression Δ	P-Value[3] RA vs. Depression	Diabetes Δ - Depression Δ	P-Value[3] Diabetes vs. Depression
Sick leave	146460	1.20	0.01	144755	0.91	0.01	144980	2.17	0.01	0.29	**<0.0001**	-0.97	**<0.0001**	-1.26	**<0.0001**
Short-term disability	189665	1.91	0.04	186906	1.41	0.03	187377	2.54	0.04	0.50	**<0.0001**	-0.63	**<0.0001**	-1.13	**<0.0001**
Long-term disability	249650	0.47	0.03	246819	0.39	0.03	247196	1.61	0.05	0.08	0.0729	-1.13	**<0.0001**	-1.22	**<0.0001**
Workers' comp	314666	-0.01	0.01	310828	0.02	0.01	311529	0.10	0.01	-0.03	**0.0015**	-0.11	**<0.0001**	-0.08	**<0.0001**
Total		3.58			2.73			6.42		0.85		-2.84		-3.69	

Conclusions

- Although the burden of DP and DB are more widely recognized, RA imposes cost burdens greater than these diseases
- Compared with employees without RA, there are significant incremental burdens borne by employees with RA both in overall **health care** costs and in work productivity impairment
- Despite the lesser prevalence of RA, the greater cost burden makes it important for employers and health plans to ensure that patients with the disease receive timely access to appropriate therapies

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