Temporal Trends in Drug Prescription, Utilization and Costs Among Rheumatoid Arthritis (RA) Patients Show Wide Regional Variation Despite Universal Drug Coverage

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Abstract

Objectives: Monitoring of drug use and costs can: describe trends in expenditures over time, identify regional variations in access and indicate physicians' uptake of bestpractice guidelines. Our aim was to describe drug use and costs of biologic (bDMARD) and conventional synthetic Disease Modifying AntiRheumatic drug (csDMARDs) in the context of singlepayer universal drug coverage.

Methods: We performed a population-based analysis, identifying all RA patients (from 1995 to 2013) who were aged 65 years and older using a validated algorithm (n=37,012). All patients received identical public drug coverage from a single public payer. Prescriptions were determined using the pharmacy claims database of the Ontario Drug Benefit Program. For each patient we recorded the annual number of prescriptions and costs for csDMARDs and bDMARDs and region of residence. Trends in annual drug use and costs were graphed by drug class and regional health authority.

Results: The total number of patients receiving RA medications tripled from 14,222 in 1995 to 37,012 in 2013. During that same time period csDMARD use and costs increased from $2.1M in 1995 to $8.5M in 2013. When bDMARDs were introduced in 2001, 105 patients received bDMARDs (0.4%) increasing to 3226 patients (11%) in 2013. During that period the costs of bDMARDS increased from $0.78M to $54.6M. In 1995, perpatient drug costs in each regional health authority were an average of $500 per patient per year. Since the introduction of bDMARDs in 2001, total cost and perpatient cost variation among regions has increased considerably, with drug expenditure in 2013 ranging from $1200 per patient per year to $2500 per patient per year.

Conclusion: The number of patients with RA increased linearly over time from 1995 to 2013. The proportion of patients receiving csDMARDs grew at the same rate as the population of patients with RA. The introduction of bDMARDs was associated with an exponential rise of bDMARD use and cost over time driving the increase in total drug costs however the use of bDMARDs was lower than in the US where 27% of patients with a mean age of 70 received bDMARDs. When analyzed by region, adoption of bDMARDs was associated with differential and widening variation in regional drug costs over time, indicating unequal use of bDMARD not explained by differences in reimbursement criteria. We hypothesize that regional access to rheumatology care and rheumatologist's varying propensity to prescribe bDMARDs are the primary drivers of inequitable utilization of bDMARDs.