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Small-area variations in sales of TNF inhibitors in Sweden between 2000 and 2009

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Abstract

Objective: To measure small-area variations in sales per capita of tumour necrosis factor (TNF) inhibitors.

Methods: For 2000–2009, sales data on etanercept, infliximab, and adalimumab were retrieved from the Swedish National Corporation of Pharmacies, which keeps data on drugs dispensed in ambulatory care and hospitals. As points of reference, data were retrieved on all drugs, non-biologic treatments for chronic inflammatory disorders (sulfasalazine, methotrexate, azathioprine), and for a biologic used in a different therapeutic area (trastuzumab). As a corollary measure to sales per capita, penetration

of biologics in the rheumatoid arthritis (RA) population was calculated using nationwide registers. Small areas were defined as the 21 counties of Sweden.

Results: From 2000 to 2009, annual TNF inhibitor sales increased 9-fold from 195 to 1779 million SEK (0.7–5.0% of total drug expenditure). The county variation in sales per capita, initially 6.2-fold (coefficient of variation 42%), decreased to 2.3-fold in 2009 (24%). During the same period, total drug expenditure per capita remained at a 1.2-fold county variation (4–6%). Sales per capita variations of non-biologic treatments against chronic inflammatory diseases ranged from 1.5 to 1.8 (12–16%). For trastuzumab, a 3.2-fold variation (30%) was observed in 2009. At the patient level, there was a 2-fold county variation (from 10% to 21%) in biologic penetration in RA. County-specific sales per capita were associated with mean RA duration ($r = -0.52$, $p = 0.015$) and C-reactive protein at treatment initiation ($r = -0.49$, $p = 0.025$), while pain was borderline significant ($r = -0.43$, $p = 0.055$).

Conclusions: Despite universal access to treatment, substantial but decreasing small-area variations were observed. Although geographic variations are anticipated initially, their persistence calls for investigation of patient equity and treatment appropriateness as counties seem to have different initiation thresholds.

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Dahlqvist (Umeå University), T Saxne (Lund University), and R van Vollenhoven (Karolinska Institutet)

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