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SHORT COMMUNICATION

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Patient characteristics associated with prescribing of a newly introduced drug: the case of rofecoxib

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Abstract *Objective*: To identify socio-demographic characteristics of the first patients receiving a new drug—rofecoxib.
Outcome measurement: Patients starting on rofecoxib or another non-steroidal anti-inflammatory drug (NSAID) and who had not received any NSAIDs the 90 days prior to starting.
Results: Starting on rofecoxib was associated with an increasing age (OR in age 80 years and older 8.7; 95% CI 6.7–11.2), a poor self-perceived health (OR = 2.4; 95% CI 1.8–3.3), female gender (OR = 1.4; 95% CI 1.2–1.6), private insurance (OR = 1.3; 1.1–1.5) and previous acetaminophen use (OR = 1.3; 1.1–1.7).
Conclusion: This study noted that specific patient characteristics were associated with getting rofecoxib prescribed shortly after marketing. General practitioners should be aware of selectively prescribing new drugs to specific patients because it may place patients at unintentional and avoidable risk.

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Introduction

Reasons for general practitioners (GPs) to prescribe new drugs may vary from an ongoing pursuit of alternative therapies for patients refractory to existing medications to a plethora of erratic market forces such as industry promotion and reimbursement. In an 'ideal' world, each prescribing decision would be based on careful weighing of the benefits, risks and costs of the new medicine in the context of alternative options. Various studies have focused on quantification and characterisation of doctors responsible for early prescriptions of a new drug [1]. To date little attention has been paid to socio-demographic characteristics of the first patients to receive new drugs. We chose the introduction of rofecoxib to study such patient factors. Rofecoxib was launched in The Netherlands for the symptomatic treatment of osteoarthritis in November 1999. The aim of this study was to identify early users of rofecoxib by socio-demographic characteristics. The reason for choosing rofecoxib was that we expected to find the influence of patients on the decision to prescribe to be because of its marketing and similarity to the existing non-steroidal anti-inflammatory drugs (NSAIDs) [2]. We hypothesised that patients with higher social economic status were more likely to have rofecoxib prescribed.

Methods

We obtained data from the Second Dutch National Survey of General Practice conducted by the Netherlands Institute of Health Services Research (NIVEL) in a representative sample of 195 Dutch GPs in 104 practices and 385,461 listed patients in 2001 [3]. These data provided background information on practice, GP, and

patient level, including prescription data. Patient data included socio-demographic factors such as educational status, type of insurance and self-reported health. Patients were asked to rank their health on a five-point scale ranging from 'very bad' to 'very good'. For educational status, we used the highest completed level of education.

The prescription database contained 57,381 NSAID users. We compared the starters on rofecoxib ($n = 954$) with patients starting on other non-selective cyclo-oxygenase inhibitor NSAIDs ($n = 25{,}231$). Starters were defined as patients who had not received a prescription for a NSAID during the 90 days prior to starting on either rofecoxib or another NSAID.

Logistic regression was applied to estimate the prevalence odds ratios (including 95% CI) of characteristics in patients starting on rofecoxib compared with patients starting other NSAIDs.

Results

In total, 99 GPs working in 101 practices prescribed rofecoxib during the study period. We noted that rofecoxib starters were more likely to be elderly [OR for those aged 80 years and older 8.7 (6.7–11.2) and patients with a poor self-perceived health (OR 2.4; 1.8–3.3)]. Furthermore, rofecoxib starters were more frequently female (OR 1.4; 95% CI 1.2–1.6), privately insured (OR = 1.3; 1.1–1.5) or previous acetaminophen users (OR = 1.3; 1.1–1.7). Moreover, start of treatment with rofecoxib was also seen more frequently in patients with a higher education, although this association diminished after adjustment for other variables (Table 1).

Discussion

Immediately following product launch, the diffusion of rofecoxib among prescribers showed a steep adoption curve. There has been ample public debate about the effectiveness and safety of rofecoxib. Concerns regarding cardiovascular safety in high-risk patients, in particular in the elderly with poor health and other co-morbidity, have evolved [4]. However, our data show that rofecoxib was preferentially prescribed to such patients. In previous studies, we have identified patterns of 'channelling' of NSAIDs in susceptible patients as threats to patient safety [5]. Industry promotion of the preferable profile of the new drug, in particular for patients with a poor response to existing therapies, is an important factor [6]. Although direct-to-consumer advertisement is prohibited in The Netherlands, the role of patients should not be underestimated. GPs have reported that patients often request rofecoxib in particular [6]. Our data show that private insurance is associated with receiving rofecoxib, but this only partly supports our hypothesis about patients with a higher social economic status

Table 1 Rofecoxib starters compared with other non-steroidal anti-inflammatory drug (NSAID) starters. Prevalence (%) and results of logistic regression analyses expressed as crude and adjusted odds ratios (OR) and 95% confidence intervals (95% CI)

	Rofecoxib starters ($n = 954$)		NSAID starters ($n = 25{,}231$)		Crude OR (95% CI)	Adjusted OR (95% CI)[a]
	No.	Percentage	No.	Percentage		
Gender						
Male	321	33.6	11,303	44.8	1.0	1.0
Female	633	66.4	13,928	55.2	1.6 (1.4–1.8)	1.4 (1.2–1.6)
Age (years)						
25–44	140	14.7	10,543	41.8	1.0	1.0
45–64	355	37.2	9,985	39.6	2.7 (2.2–3.3)	2.5 (2.0–3.0)
65–79	309	32.4	3,706	14.7	6.3 (5.1–7.7)	5.5 (4.4–6.8)
80+ years	150	15.7	997	4.0	11.3 (8.9-14.4)	8.7 (6.7–11.2)
Insurance						
Public	668	70.0	18,496	73.3	1.0	1.0
Private	286	30.0	6,735	26.7	1.2 (1.0–1.4)	1.3 (1.1–1.5)
Educational status						
University	76	8.0	2,870	11.4	1.0	1.0
Secondary school	414	43.4	1,1641	46.1	0.6 (0.5–0.7)	1.1 (0.9–1.3)
None or elementary school	261	27.4	4,124	16.3	0.4 (0.3–0.5)	0.9 (0.7–1.2)
Unknown	203	21.3	6,596	26.1	0.5 (0.4–0.6)	1.0 (0.7–1.3)
Self-reported health						
Good	384	40.3	1,3141	52.1	1.0	1.0
Moderate	292	30.6	4,255	16.9	2.3 (2.0–2.7)	1.7 (1.4–2.0)
Poor	63	6.6	653	2.6	3.3 (2.5–4.4)	2.4 (1.8–3.3)
Unknown	215	22.5	7,182	28.5	1.0 (0.9–1.2)	1.2 (0.9–1.7)
Previous use of acetaminophen						
No	862	90.4	24,245	96.1	1.0	1.0
Yes	92	9.6	986	3.9	2.6 (2.1–3.3)	1.3 (1.1–1.7)

[a]Mutually adjusted

being more likely to start on rofecoxib. The finding that previous acetaminophen use was associated with starting on rofecoxib may be explained by the wish of GPs to provide gastroprotection. In the Dutch healthcare system, privately insured patients, about 25% of the population, have a higher income, but are frequently not fully insured unless under various co-payment schemes. The reimbursement of rofecoxib is not limited to any type of insurance, age category or indication.

In conclusion, we found that specific patient characteristics were associated with receiving a prescription for rofecoxib shortly after marketing. GPs should be aware of selectively prescribing new drugs to specific patients because it may place patients at unintentional and avoidable risk.

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