ELSEVIER

Social Science & Medicine 63 (2006) 2890–2898

SOCIAL SCIENCE & MEDICINE

www.elsevier.com/locate/socscimed

Determinants for the adoption of angiotensin II receptor blockers by general practitioners

Jacoba P. Greving[a], Petra Denig[a,*], Willem Jan van der Veen[b], Frank W. Beltman[b], Miriam C.J.M. Sturkenboom[c], Flora M. Haaijer-Ruskamp[a]

[a]*Department of Clinical Pharmacology, University Medical Center Groningen, The Netherlands*
[b]*Department of General Practice, University Medical Center Groningen, The Netherlands*
[c]*Departments of Medical Informatics and Epidemiology & Biostatistics, Erasmus Medical Center Rotterdam, The Netherlands*

Available online 7 September 2006

Abstract

Results of studies conducted 10–20 years ago show the prominence of commercial information sources in the adoption process of new drugs. Over the past decade, there has been a growing emphasis on practicing evidence-based medicine in drug prescribing. This raises the question whether professional information sources currently counterbalance the influence of commercial information sources in the adoption process. The aim of this study was to identify determinants influencing the adoption of a new drug class, the angiotensin II receptor blockers (ARBs), by general practitioners (GPs) in The Netherlands. A retrospective study was conducted to assess prevalent ARB prescribing for hypertensive patients using the Integrated Primary Care Information (IPCI) database. We conducted a survey among all GPs who participated in the IPCI project in 2003 to assess their exposure to commercial and professional information sources, perceived benefits and risks of ARBs, perceived influences of the professional network, and general characteristics. Multilevel logistic regression was applied to identify determinants of ARB adoption while adjusting for patient characteristics. Data were obtained from 70 GPs and 9470 treated hypertensive patients. A total of 1093 patients received ARBs (12%). GPs who reported frequent use of commercial information sources were more likely to prescribe ARBs routinely in preference to other antihypertensives, whereas GPs who used a prescribing decision support system and those who were involved in pharmacotherapy education were less likely to prescribe ARBs. Other factors that were associated with higher levels of ARB adoption included a more positive perception of ARBs regarding their effectiveness in lowering blood pressure, and working in single-handed practices or in rural areas. Aside from determinants related to the patient population, adoption of a new drug class among Dutch GPs is still determined more by their reliance on promotional information than by their use of professional information sources.

Keywords: The Netherlands; Angiotensin II receptor blockers; Antihypertensive treatment; Decision making; Drug utilization; Primary care

Introduction

There is a lively debate about which medication to choose in hypertensive treatment, fuelled by controversy about possible limitations of large

*Corresponding author.
E-mail address: p.denig@med.umcg.nl (P. Denig).

0277-9536/$ - see front matter © 2006 Elsevier Ltd. All rights reserved.
doi:10.1016/j.socscimed.2006.07.019

randomized clinical trials and interpretation of their findings as well as by financial interests and concerns (Frohlich, 2003; Moser, 2003). Quality improvement programmes stress the relevance of implementing clinical guidelines and practicing evidence-based medicine, governments aim for cost containments, and pharmaceutical industries aim to make more profits (Lexchin, 2002). Amidst these forces, physicians have to decide about the place of new antihypertensive drugs. Results of studies that were conducted more than 20 years ago showed the prominence of commercial information sources in the adoption process of new drugs and the minor influence of professional information sources (Avorn, Chen, & Hartley, 1982; Peay & Peay, 1984). The influence of commercial information is still a matter of concern, but there are few recent empirical studies on the impact of various information sources on drug choice and prescribing behaviour (Caamano, Figueiras, & Gestal-Otero, 2002; Wazana, 2000). In an environment with a growing emphasis on evidence-based medicine, professional information sources might counterbalance the influence of commercial information sources in the adoption process.

Angiotensin II receptor blockers (ARBs) were introduced in the market in 1995 as a new drug class for hypertension after proving efficacy in lowering blood pressure. Evidence on hard endpoints such as cardiovascular morbidity and mortality in patients with hypertension was not available until 2002 (Dahlof et al., 2002). Due to this lack of evidence on hard endpoints, the high costs, and the availability of alternatives with proven effectiveness, ARBs have not been recommended as first-line treatment for essential hypertension in most treatment guidelines (Grobbee, Tuut, & Hoes, 2001; JNC, 1997). Nevertheless, the use of ARBs has increased remarkably in the last 10 years (Garcia del Pozo, Ramos Sevillano, de Abajo, & Mateos Campos, 2004; Greving et al., 2004).

Adoption rates of new drugs vary among physicians and by type of drug (Dybdahl, Andersen, Sondergaard, Kragstrup, & Kristiansen, 2004; Inman & Pearce, 1993; McGavock, Webb, Johnston, & Milligan, 1993; Steffensen, Sorensen, & Olesen, 1999; Tamblyn, McLeod, Hanley, Girard, & Hurley, 2003). The adoption of new treatments in clinical practice is the result of many factors. Based on Rogers' theoretical model for the diffusion of innovations, the following factors can be identified: (1) information sources used, (2) perceived characteristics of the new drug, (3) professional network and norms, (4) general physician characteristics (Rogers, 1995). In addition to this general framework, decision-making theories can help us understand how treatment choices are made on an individual level (Sox, Blatt, Higgins, & Marton, 1988). Differences in drug choice can be related to different perceived characteristics or expectations about drugs, but also to differences in the relative importance or value assigned to the various drug aspects (Denig, Haaijer-Ruskamp, & Zijsling, 1988; Denig, Witteman, & Schouten, 2002; Segal & Hepler, 1985).

Physicians who frequently prescribe new drugs have shown to be less cost-consciousness in prescribing and to rely more on commercial information sources (Jacoby, Smith & Eccles, 2003; Prosser & Walley, 2003). Adoption of new drugs was also found to be associated with physician gender, specialty, medical school, years since graduation, practice location, practice size, and proportion of elderly in the practice (Steffensen et al., 1999; Tamblyn et al., 2003). On the other hand, characteristics of the patient population of a physician may also determine the need for prescribing new treatments (Bourgault, Rainville, & Suissa, 2001; Florentinus et al., 2005; Klungel, de Boer, Paes, Seidell, & Bakker, 1998). To date, none of the studies looking at determinants of drug adoption considered the influence of all factors simultaneously and took possible differences in patient populations into account.

The aim of this study was to identify determinants for adoption of ARBs in routine prescribing for hypertension by linking physician related characteristics to their actual prescribing behaviour while adjusting for patient characteristics.

Methods

Setting

The data reported in this study were collected from 75 general practitioners (GPs) contributing to the Integrated Primary Care Information (IPCI) database in 2000–2003. The IPCI database is a general practice research database which contains information from computer-based patient records of GPs in The Netherlands and is maintained by the Erasmus Medical Center (van der Lei et al., 1993). The first practice was enrolled in the IPCI project in 1992 but a large proportion of practices started to