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RESEARCH ARTICLE

Community pharmacists' knowledge and perceptions on risk management plans in the Southern Region of Portugal

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ABSTRACT

A Risk Management Plan (RMP) is a detailed description of the activities and interventions designed to identify, characterize, prevent, or minimize risks relating to medicine's use. The objective of this article is to assess RMP-related knowledge of community pharmacists and explore the reasons behind any potential issues with its use. This study has two focus points: (1) A cross-sectional survey within a sample of pharmacies in the area covered by the South Pharmacovigilance Center; and (2) a focus group (FG) with key-informants, in order to increase the explanatory scope of quantitative results. In total, 41.6% of the participants in the study knew what a risk management plan was, but 50% rated their knowledge as poor. According to focus group participants, this lack of knowledge seems to be related to three main factors: (i) this subject not being addressed during graduation training; (ii) professionals' attitude; and (iii) lack of communication among different stakeholders. It is recommended that there is enhanced academic training in risk management. There is an important call for attitudinal change interventions and further investigation in monitoring RMP use and impact. A closer articulation between the regulator, the pharmaceutical society, associations, and industry is needed to promote and boost this topic among community pharmacists.

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Introduction

Drug safety has been in the agenda of the health authorities in Western countries, especially since the thalidomide tragedy in the early 1960s (1). This tragic event alerted the safety profiles of drugs, since what was thought to be a relatively safe medicine concealed a severe health risk. This disaster was a pivotal point in the rise of pharmacovigilance societal awareness and scientific relevance (2).

It is well established that, when a drug is authorized, not every risk is identified, and drug-related hazards can only be completely characterized in the post-marketing phase (3,4). This was the foundation for regulatory requirements related to risk management plans (4). The compulsory introduction of the risk management plan (RMP) in Europe, beginning in 2005, has ensured greater proactivity in pharmacovigilance and post-authorization benefit-risk management (3). The RMP, submitted by the marketing authorization holder, is presently defined as 'a set of pharmacovigilance activities designed to identify, characterize, prevent, or minimize risks relating to medicinal products, including the effectiveness of those activities and interventions' (p. 2) (5). The overall aim of risk management is to ensure that the benefits exceed the risks by the highest possible margin, both for the individual patient and at the population level (6). Providing risk-related information is a crucial step in risk management; if safety information fails to reach health professionals and patients within adequate timeframes, the whole RMP system and pharmacovigilance itself will lose significance (7).

The new European Union pharmacovigilance legislation, in place since July 2012, further embeds these activities as a key tool in pharmacovigilance (3). In addition, risk management plans and their monitoring became mandatory (8–10); an example of these activities is the risk minimization programs for drugs, such as the isotretinoin pregnancy prevention program, designed to avoid unnecessary harm to female patients. Despite these programs, cases of *in utero* exposure to isotretinoin have been acknowledged in recent years (11–13). These situations may result from lack of adherence to these instruments, both from healthcare professionals and patients. Thus, the assessment of additional risk minimization measures is an essential part of the ongoing evaluation of the benefit–risk balance of a drug (14).

According to The Erice Declaration on Communicating Drug Safety Information, risk communication is a public health activity which depends on the

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mutual responsibility of all players—patients, healthcare professionals, pharmaceutical industry, drug regulators, academia, and the media (15). Information communications, particularly safety risk information, are supervised by the regulatory authority in the country and streamed down to concerned regulators, healthcare professionals, patients, and other parties of interest (15). Regardless of strong recommendations for adapting communication to specific recipients, the opportunity for the general public, patients, and practitioners to be involved in this discussion is still limited (16, 17).

The present study aimed to understand the knowledge of community pharmacists on risk management plans and to investigate reasons behind potential issues on their use.

Methods

Design, research instruments, and recruitment

A cross-sectional study was undertaken and the data collected with a questionnaire (open ended questions) answered during a phone interview within a sample of pharmacies in Southern Portugal. The study population consisted of the 301 community pharmacies in the area covered by the South Pharmacovigilance Center, namely Faro, Beja, Évora, Portalegre, Alcácer do Sal, Grândola, Santiago do Cacém, and Sines. Phone interview was chosen as the method to apply the questionnaire, mainly due to the geographical dispersion of potential interviewees (18). Interviews were conducted between April–June 2013. The questionnaire gathered information regarding participants' demographics and their knowledge of risk management plans (Table 1).

In a subsequent phase of the study, the main results of the survey were delivered to a focus group (FG) with key-informants. The qualitative approach was chosen to allow for the gathering of the different stakeholders' points of view, while facilitating the discussion of the previous study results and the development of ideas in order to improve the knowledge of community pharmacists in this field. The meeting with the focus group took place at Faculty of Pharmacy, University of Lisbon, in November 2013.

The focus group's guide consisted of a short introduction on the subject and a first engagement question, followed by a few exploratory questions and an exit question (Table 1).

Both questionnaire and interview guide were tested with pharmacists working in the Lisbon area, under the same conditions of the application of the final questionnaire. The data collected during the pilot test was not included in the final study. After the pilot test conducted among 10 community pharmacists, small changes were made to improve the clarity of several questionnaire items, including the order of the questions (19). The interview guide was tested with a pharmacist that worked in a regulatory affairs department of a multinational company, with previous experience in community pharmacy and a member of a pharmacovigilance working group. This interview was used to adjust the initial script. In the qualitative study, the purposes of the interview were presented in advance and clarified before the actual group interview.

A simple random sampling was performed. From the 301 potential pharmacies in the region, we successfully contacted 271. These pharmacies were invited with the option to respond in their own time or scheduling the best time for a second contact or to send the survey via email. Pharmacies that asked for a later contact or did not answer were contacted over the phone three more times at different hours and days. A reminder from the South Pharmacovigilance Center by e-mail was made to those pharmacies that had requested the questionnaire to be sent by email and had not responded after 2 weeks. For the questionnaire, a respondent was identified at each telephone contact. The questionnaire could be answered by any pharmacist at the participating pharmacy, with the decision of which pharmacist completed the questionnaire being determined by the individual pharmacy (the investigators only asked for the participation of 'a pharmacist'. Regarding the FG, by a purposive sampling method, nine pharmacists from community pharmacies (2), the regulatory authority (2), pharmaceutical industry (2), and regional pharmacovigilance centers (3) were invited to participate. Only two of the nineinvited pharmacists refused to participate in the study, due to scheduling conflict.

Table 1. Key domains: Survey and focus group interview.

Study	Key domains under investigation	Questions
Quantitative study	Knowledge of Risk Management Plans	Do you know what a risk management plan is? (Yes/No) How do you evaluate your degree of knowledge? (Null/Poor/Sufficient/High) Are you familiar with risk minimization measures? (Yes/No)
Qualitative study		What is the perception of community pharmacists on the effective use of risk management plans? How can the pharmacists' knowledge on risk management plans be improved? Imagine that you have the opportunity to introduce a change in order to improve the National Pharmacovigilance System. What would it be?

Ethical considerations

The pharmacists' participation was voluntary. Verbal informed consent was obtained from all survey respondents and from each participant of the FG before gathering the data. Data protection for each individual participant was also guaranteed by the use of good research practice procedures, including data confidentiality and anonymization at individual and institutional level. This research was ethically approved by the coordinating council of the South Pharmacovigilance Center.

Analysis

Survey data was entered into a statistical database (SPSS® v20) and a quantitative analysis performed. A descriptive analysis was performed as well as a measure of statistical association between variables using the Chi-square test; p-values <0.05 were considered statistically significant.

The FG was audiotaped and the transcripts subjected to a reflexive qualitative coding process, inspired by the framework approach, and later analyzed according to the three-dimensional attitude theory, NVivo® (v10) was the software that was used to manage the data (20). The principal investigator was responsible for the transcripts of FG.

Results

Quantitative study (survey)

Demographics

Of the 154 pharmacists participating in the study, 116 were women (75.3%) and the mean age was 37 years (SD ±10.9). The average number of years of practice was 11 years. Regarding the distribution of the respondents, 39.6% were from Faro, 21.4% from Évora, 18.2% from Portalegre, 12.3% from Beja, and 8.4% from the other Southern districts. Of the 154 respondents, 59 (38.3%) had reported a suspected adverse reaction vs 95 (61.7%) who had never reported an adverse drug reaction (ADR).

Perceived knowledge of RMP and risk minimization measures

Of the 154 community pharmacists interviewed, 41.6% (64) reported knowing what a RMP is and, of these, 50% (32) rated their level of knowledge as poor, while 32.5% (50) of all participants were unable to give an example of a risk minimization activity. Also, from the respondents that knew what a risk management is, 53.1% were less than 32 years old and 45.3% had between 1–5 years of practice. To illustrate the concept of risk management plans, the drug isotretinoin was given as an example: 69.5% (107) of the respondents referred to never having seen the isotretinoin pregnancy prevention program educational materials, such as the communication letter to the pharmacist regarding the pregnancy prevention program requirements or the dispensing guide which contains educational messages and counseling advice.

Of the 154 participants, 37.7% believe that specific educational programs for healthcare professionals are the most useful measure for risk minimization, followed by a pictogram on the packaging of the drug (33.1%), the distribution of the treatment guide to patients (20.8%), and the control or restriction of the prescription (8.4%).

Qualitative study (focus group)

From a total of seven participants in the focus group, six were women. Of these seven, two were Southern community pharmacists; two were pharmacovigilance technicians at regional pharmacovigilance centers, two worked at the regulatory authority, and the last participant worked at a pharmacovigilance department on the pharmaceutical industry. The session lasted ~1.5 h.

Perception on the implementation of risk management plans

According to the participants of the FG, community pharmacists do not put into practice the measures described in risk management plans.

Causes for the non-implementation of risk management plans

When asked for their opinion regarding the knowledge of community pharmacists on risk management plans, the answer was unanimous: participants considered that the knowledge of community pharmacists on this subject is very limited. The main reasons for this lack of knowledge are the following: the lack of undergraduate training; poor communication between the different stakeholders in risk management, particularly the information flow within community pharmacies; the lack of interest from health professionals in searching information on these subjects, including on the website of the regulatory authority.The non-inclusion of pharmacists in the design of educational materials as in the distribution list was also pointed out for the non-implementation and lack of knowledge. In fact, educational materials are not always targeted for these health professionals,

which may hinder the approach of community pharmacists to this subject. This non-inclusion of pharmacists was considered a barrier for the engagement of community pharmacies to this issue, along with the lack of patient records in pharmacies. Reasons for non-implementation of risk mangement plans also included lack of effective communication between the different players in risk management, the main consequence being the non-implementation and non-adherence to risk minimization measures.

Measures to improve pharmacists' knowledge and implementation of RMP

Educational measures such as providing training to community pharmacists and communication improvement were the main actions suggested. One way to minimize the lack of communication is to increase awareness on this subject near community pharmacies. This can be achieved through organizations that are close to them and in which they trust, such as the pharmacies association and professional society. To the participants of the FG this seems to be a good measure to change the lack of communication. Using drug firm representatives as a vehicle for distributing educational materials was also mentioned.

The addressing of safety alerts is perceived by the participants as inefficient, since it appears that these alerts do not receive proper attention and are not read by all the workers. In order to improve this, it is suggested that pharmacies receive certification in quality in order to include these mechanisms and that the regulatory authority issues a more systematic and focused safety warnings alert system, beyond warning signals at the regulatory authority site. Actually, the re-organization of the regulatory authority portal to improve its navigation was recommended. On the other hand, healthcare professionals should also be encouraged to search the websites of regulatory agencies.

Discussion

The importance of medicines risk management is well documented. When we look at the examples of thalidomide and clozapine, without demanding risk management plans, these drugs would likely not be available. If that were the case, their potential benefits for specific and smaller patient populations, multiple myeloma, and schizophrenia patients, respectively, would be lost. As a result of thalidomide's pregnancy prevention program, women of childbearing potential can benefit from this medicine. Also, the clozapine restricted distribution program forms the basis for relaxing the restrictions and expanding the population that may benefit from the drug (21). Medical literature on the knowledge of professionals on these programs is scarce (2), and no studies were found on the community pharmacists' awareness of risk management plans. However, references for non-adherence with the isotretinoin Pregnancy Prevention Program by pharmacists and dermatologists were found (2,13). Pharmacists were asked for proposals to increase compliance and suggested better communication and better information tools to improve the pharmacy monitoring systems (2). This evidence is in line with the results of our study.

A previous study has clearly shown that the core of successful risk management lies on effective risk communication (22). This is also a main finding in our study: it seems important to improve the community pharmacists' knowledge on this subject and this is strongly connected with communication and information that arises from the pharmacovigilance system. Nevertheless, this lack of transparent and effective communication is not just inside and outside organizations, but also in communicating information to the general public. Professionals need to assure the effectiveness of communication and also an attitudinal change for patients' safety, such as seeking for further post-graduate training. Again, better communication is essential, since effective communication plays a crucial role in the delivery of health services, including pharmacies (23,24). It is necessary to find other communication channels with practitioners, in addition to dissemination in the media, involving professional organizations and opinion makers.

According to the FG results, the lack of training during the course of pharmaceutical sciences reflects the assumption of responsibility attached to universities in this area. This can be explained by the fact that the number of hours dedicated to pharmacovigilance education and training seems insufficent. Actually, as it turns out, in the UK and Malaysia, final-year pharmacy students have poor knowledge of pharmacovigilance (25,26). Nevertheless, the first European Guideline to describe risk management systems was published in 2005 and, taking into account the average years of practice of the sample studied, most of this population had already graduted prior to 2005 and, therefore, contact with this subject at the university level was almost non-existent. In Portugal, pharmacovigilance is only an optional unit in one of the five public schools of pharmacy. In the remaining universities, pharmacovigilance is not part of the curriculum, even as an optional course.

Pharmacovigilance training should be a topic of interest of universities and pharmacists associations. It is

recommended that universities should update their curricula by introducing pharmacovigilance as a discipline in its own right, and not as a seminary of pharmacology courses, but also professional associations should have more interest in the continuing education of their members, even through online and distance learning courses, today widespread, economical, and practical for those who work.

The improvement of the community pharmacists' knowledge on RMP is strongly connected with communication and information from the pharmacovigilance system. Enhancing the access of the pharmacists to the documents published in regulatory authority's websites is needed and is fundamental to understanding how this information can easily reach the HCPs and be understood as meaningful. A recent study alerts to the fact that safety information on drugs does not always reached healthcare professionals through direct healthcare communication (27). The effectiveness of safety communications and educational materials should be investigated in order to first understand if the information and the materials reached the target audience and, second, healthcare professionals' attitudes towards these issues.

Study limitations

Social desirability bias and non-respondent bias may be considered as potential limitations of the research. A possible Hawthorne effect may be pointed out as a limitation to the focus group, due to the fact that being recorded can have an impact on the type and trend of responses from the participants. Despite this fact, we observed some disagreement between participants while conducting the focus group.

Conclusions

A greater consciousness to actually read and use risk information specifically produced by the regulatory authority and authorization marketing holders, starting with the pharmacovigilance bulletin, is recommended in Portugal. This seems especially relevant amongst community pharmacists, who are in daily contact with the public. There is an important call for attitudinal change interventions and further investigation in monitoring RMP use and impact.

Disclosure statement

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

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