

United Arab Emirates Pharmacists' Practices and Views on Adverse Drug Reaction and Medication Error Reporting and Health Professionals' Expectations

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Abstract: Adverse drug reactions (ADRs) constitute a huge burden on health systems, and medication errors (MEs) are the most common preventable cause of adverse drug events. In developed countries pharmacists contribute to a great extent in ADR monitoring and reporting, improving patient quality of care and safety. This review aims to explore pharmacists' practices and views on ADR reporting, extent and causes of MEs and other health professionals expectations of pharmacists in this regards. An extensive literature search was conducted using pertinent electronic health databases (ProQuest, PubMed, Embase, and International Pharmaceutical Abstracts, and the Cumulative Index to Nursing & Allied Health Literature). Hand-searching of the references retrieved was also performed. Very few studies were found, none report the prevalence or severity of MEs. Under-reporting of ADRs is common place among community pharmacists in the UAE. Overall physicians expressed positive views about clinical pharmacists' role in medication reviews to identify and prevent drug interactions and improve patients' clinical outcomes. More research is required to enhance ADR reporting and reduce MEs in the UAE. Training about the process of ADR monitoring and reporting at undergraduate level across health science disciplines and continued education and development led by pharmacists is vital to improve patient safety.

Keywords: Adverse drug reactions, medication error, prescription error, patient safety, pharmacist, pharmacy, United Arab Emirates.

I. Introduction

Adverse drug reactions (ADRs) are costly drug problems associated with pharmacotherapy and impose huge burden on society and health systems. ADRs cause temporary or permanent harm, disability, or death, negative affect on prognosis, significant diagnosis complications, necessitating hospitalization and supportive treatment [1]. Medication error (ME) is defined as 'a failure in the treatment process that leads to, or has the potential to lead to, harm to the patient' [2]. It is also defined as a mistake that occurs anywhere in the medication use process [3]. Investigating reported medication incidents could help plan organizational efforts and design quality improvement projects to enhance patient safety [4].

The United Arab Emirates (UAE) is a politically and economically important country in the Middle East. In recent years, the UAE has seen increased growth with the country's total population reaching 8,264,070 in 2010 [5]. As well as advancements in healthcare delivery and pharmacy profession including education and industry [6]. In terms of pharmacovigilance, the UAE launched its National Pharmacovigilance Programme in 2008 [7]. It joined the WHO International Drug Monitoring Programme in collaboration with the Uppsala Monitoring Centre in 2013 [8]. The Health Authority of Abu Dhabi (HAAD) took initiatives to encourage pharmacovigilance through greater provision of drug information, the development of a Unified Prescription Form, and formalization of a 'Generic Policy' to enhance pharmaceutical care and reduce medication errors in practice [9].

Under-reporting of medication errors is documented particularly in developing countries [10]. Some of the identified barriers for reporting errors include the inability to report anonymously, fear of legal and professional disciplinary action, negative repercussions on career, time constraints, and perception that it is unnecessary [11]. Contributing factors to the problem of medication errors in the Middle East have been linked to health professionals' training, differences in or lack thereof the clinical role of pharmacists, types of medications prescribed and cultural issues [12].

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This literature review aimed to identify the studies of the incidence and contributing factors to ADR reporting and ME in the UAE, the practices and views of pharmacists and the expectations of health professionals of pharmacists in this regard.

II. Methods

A comprehensive review of published English language literature was conducted using pertinent electronic health databases (ProQuest, PubMed, Embase, and International Pharmaceutical Abstracts, and the Cumulative Index to Nursing & Allied Health Literature). The search was limited to scholarly journal articles and conference papers and proceedings published from 1990 to October 2014. Articles that focused on medical (not medication) errors and nursing practice errors were excluded. Hand-searching of references of retrieved articles was also performed.

The following terms were used: Adverse drug reaction(s), medication error(s), medication mistake(s), prescription error(s), dispensing error(s), wrong medication(s), wrong drug(s), pharmacist(s), pharmacy, physician(s), nurse(s), and perception(s). Each of the words were combined using "OR" then combined using "AND" with (United Arab Emirates) OR Emirates OR UAE.

III. Results

Pharmacists' practices and views on adverse drug reactions monitoring and reporting

Patterns of reporting, or more accurately "under-reporting" of ADR and ME by pharmacists varied across the UAE. Overall there are marked problems with reporting ADRs by UAE Community pharmacists (CPs) [13]. None of the studies found reported the types of ADRs reported, prevalence or severity of MEs, or explored the practices of hospital pharmacists in regards to ADR and ME reporting and monitoring.

Pharmacists in the UAE recognize the importance of taking a role in promoting the safe and rational use of medicines, and are willing to receive responsibility to ensure maximum benefit for their patients [14]. In a study 86.5% of CPs felt that they should be involved in ADRs reporting and 89.2% believed that ADRs reporting is part of the professional role of pharmacists [13]. However pharmacists' beliefs did not match their levels of reporting. Only 27% of CPs always report medication errors and 28% reported ADR [15]. Pharmacovigilance activities were not found to be performed in around 40% of pharmacies [15].

ME identification and reporting was performed more frequently by pharmacists in Abu Dhabi compared to Northern Emirates [15]. Eighteen per cent of pharmacists from a study conducted in Ras Al Khaimah reported ADR to different set-ups, 6% of them stated reporting ADR on at least two occasions [14]. Only 3.6% of CPs from Sharjah and Ajman submitted ADR reports to Ministry of Health or pharmaceutical companies [14].

Older pharmacists were found to be less likely involved in identifying and reporting MEs or ADRs [15]. Also in one study the majority of CPs (96.9%) expressed concerns regarding the need to discuss suspected ADRs with physicians [13]. Most of the CPs (80%) believed that ADR should be reported primarily by physicians [14]. As for detecting, predicting and preventing prescription and dispensing errors, a study concluded that pharmacists failed to inquire about patients concurrent medicines use, counsel patients adequately about how to use medicines, prevent and or manage adverse effects [16]. Pharmacist consultation in community pharmacies was found to be low and only 10% of it was related to adverse drug effects [17]. In regards to over-the-counter (OTC) products, the majority of CPs (97.3%) were not willing to report OTC related ADRs [13].

A number of important reasons have been identified as contributing factors to the problem of under-reporting among CPs in the UAE. These include; poor knowledge about ADRs, the importance of reporting as well as the existing ADR reporting program, lack of the know-how to report ADR, and logistic obstacles [13,18]. Beliefs such as all serious ADRs are already known, commonly observed ADR are well documented in the literature hence not essential to be reported, a single ADR report has no effect and that reporting is useless have been identified [18,19]. Other reasons identified, with less importance, include concern about legal accountability and repercussion on their careers, lack of financial incentives and motivation, and ADRs reporting is time consuming [13].

CPs had poor knowledge about pharmacovigilance and ADRs reporting [13]. Only 4.9% of respondents had good ADRs reporting knowledge, none of the pharmacists correctly defined ADRs, and only 2.6% stated they knew the difference between ADR type1 and ADR type 2. In the same study, only one CP was aware of the Naranjo algorithm used for causality assessment of ADR [13]. Pharmacists were also uncertain about the causality connection between ADRs and drugs. The majority (94.5%) indicated that they must be sure of the causality between the drug and ADRs before reporting. Also most CPs (92%) stated they have not been trained to report ADR, and (86%) were interested in training [18].

Moreover 46% to 83.4% CPs did not know how to report ADRs [13, 18-19]. Approximately half of the surveyed CPs (55.9%) were not aware of the Health Authority in Abu Dhabi (HAAD) PV program [18].

Awareness of ADR Reporting system in Ras Al Khaimah was limited, only 28% of pharmacists were aware of the ADR reporting system in the UAE [18]. Other obstacles such as lack of the availability of reporting forms (81.8%) and complexity of reporting forms (59.6%) were identified [18-19].

Health professionals' perceptions and expectations

UAE physicians had mixed views regarding clinical roles of pharmacists, including ADRs reporting and advising physicians about medication selection based on effectiveness and safety. Their views ranged from very favorable acceptance to unfavorable acceptance. Younger physicians by years of experience (less than 10) were more accepting of the clinical role of pharmacists and services [14]. Around 43% stated that pharmacists are already a source of identification of medication related problems [14]

Health Professionals (HPs) working in hospital settings (74.0%) believed that clinical pharmacists are able to minimize medication error and improve patient therapy outcomes [20]. Their belief was significantly influenced by having clinical pharmacists in their institutions. HPs working in emergency departments reported similar findings, most (68.6%) agreed that clinical pharmacists would reduce the incident of ADRs in emergency departments [21]. Clinical pharmacists' positive impact on nursing staff's awareness about medication errors and reporting was confirmed in an intervention study through ongoing and reflective professional education [22]. The majority, 95.5%, expressed willingness to cooperate with clinical pharmacists in monitoring drug therapy and identifying medication errors [18].

IV. Discussion

The findings of this review are not unique to the UAE, similar findings of under-reporting of ADRs and MEs and their contributing factors were identified in Saudi Arabia, Qatar and Iran [23-26]. Most pharmacists in Saudi Arabia (90%), similar to the UAE, considered ADRs reporting part of their professional role [23]. This consideration was higher in two other studies from Netherlands and Malaysia, where all participating pharmacists (100%) considered ADRs reporting part of their professional role [27-28].

Geographical variation in reporting ADRs was observed in one of the studies, with Abu Dhabi pharmacists engaging in ADR reporting more than pharmacists in the Northern Emirates [15]. This could be as a result of familiarity with the pharmacovigilance centers that are located in Abu Dhabi, the capital. In another study more than half of CPs (55.9%) were not aware of the PV program run by the Abu Dhabi Health Authority [13], this might explain the geographical difference in ADR reporting. A similar report of unawareness of the existence of a local PV center was observed in a Malaysian study. In this study, 59.3% of pharmacists were not aware that a PV center exists in their country [28]. To the contrary, increased awareness about local PV centers was reported among pharmacists in Saudi Arabia, Holland and the UK [23, 27, 29]. Only 1% and 7% of CPs in Holland and the UK, respectively, were not aware of the existence of their national PV Centre [27, 29]. This finding reflects inadequate publicizing of the existing HAAD PV program to CPs especially in the Northern Emirates. Strategies to raise the profile of the existing PV centers through multimedia campaigns, information brochures and posters containing center hotlines delivered to community pharmacies in the country is recommended.

Another difference in ADR reporting was observed with pharmacist age, older pharmacists in the UAE were less likely to be involved in PV activities. This might be explained in that PV is a relatively new field in the UAE and older generation pharmacists might have not had it incorporated in their education. A study from South Africa reported that Senior Health Professionals' knowledge about reporting ADR from antiretrovirals was higher than Junior HPs and attributed that to their formal training and level of experience [30].

UAE pharmacists completely opposed their fellow pharmacists in Saudi Arabia in the willingness to report OTC related ADRs [23]. UAE pharmacists need to be re-educated about the reporting guidelines and encouraged to report all ADRs for all drugs prescription, non-prescription OTC and herbal supplements. Also the majority of UAE CPs (96.9%) were concerned about discussing suspected ADRs with doctors [13]. Perhaps reflecting lack of confidence and fears of legal liability similarly reported in other studies [23, 27]. Also it might be linked to their reported uncertainty of the causality between ADRs and drugs, which was one stated as one of the reasons for under-reporting of ADRs [31]. Uncertainty of the causality between ADRs and drugs before reporting and fears of appearing unwise and irrational has been reported among pharmacists in other countries like Saudi Arabia [23]. Although discussions between pharmacists and doctors are not a requirement before submitting ADR reports to the authorities in the UAE, CPs should be encouraged to have interdisciplinary professional discussions of this sort with their colleagues for their patients' improved health outcomes. The fears and negative beliefs of pharmacists in regards to communicating with their colleagues should be addressed in pharmacists' professional development to alleviate their anxiety and strengthen their clinical confidence in reporting ADRs.

This review revealed that UAE CPs, like CPs in Saudi Arabia, Iran, Malaysia and Turkey, have poor knowledge about PV and ADRs reporting [23, 25-26, 32]. Also, the review revealed that most UAE CPs do not

know the process of how to report ADRs. Poor CPs knowledge and unfamiliarity with the process on how to report ADRs was also reported in China [33]. The opposite was reported for CPs from UK, Australia and New Zealand, where they showed sufficient knowledge on how to report ADRs [34-36]. Hence, launching awareness PV programs not only focusing on the knowledge aspect but also the procedural aspect of ADR reporting for UAE CPs is necessary.

V. Conclusion

CPs in the UAE need to improve their pharmacy practice knowledge in pharmacovigilance and patient counseling skills in order to successfully contribute towards patient safety. Educating pharmacist about pharmacovigilance is paramount. It should start at undergraduate level and be incorporated in pharmacy curricula across the country. Nation-wide education campaigns by health authorities fostering non-blaming and professional culture is required to heighten the importance of patient safety. Continuous medical education on ADRs monitoring and reporting, publicizing ADR bulletins and feedback reports, using information technology to simplify the online access for HAAD ADR reporting and making the National PV system accessible online, sending reminder SMS and e-mails to facilitate reporting activities may motivate pharmacists for more participation. Clinical pharmacists should engage more in peer education and lead interdisciplinary health professionals training in hospital and community settings.

It is important that pharmacists understand their obligation to make patients' pharmaceutical care and safety their first priority. Active participation in ADR reporting and monitoring is a step forward towards this goal. Community pharmacists must utilize their clinical role to capture medication errors before reaching patients by capitalizing on patient counseling. As the last point of contact between the patient, pharmacist, and medication in the dispensing process it is a very important strategy for pharmacists to adopt effective patient counseling in order to minimize dispensing errors and enhance patient safety.

Taking into consideration the limited number of studies published and differences in study settings and research methods, this review calls for more research to assess the differences and underlying causes for under-reporting of ADRs by CPs in the UAE. Almost all the studies about the pharmacists' practices and views in our review had been conducted and published in the past two years. This shows that studying pharmacovigilance in the UAE is a new area of research. In addition to education and increasing awareness, PV authorities are urged to fund more research in pharmacists' practices and role in patient safety in the UAE.

VI. List Of Abbreviations

UAE: United Arab Emirates, ADR: Adverse Drug Reaction, ME: Medication Error, PV Pharmacovigilance, CP: Community Pharmacist, HP: Health Professional, HAAD: Health Authority of Abu Dhabi, OTC: Over-the-counter.

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