



Original article

Attitude and knowledge of Saudi community pharmacists towards use of proton pump inhibitors

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ABSTRACT

Introduction: Proton pump inhibitors (PPIs) effectively suppress acid secretion and play an important role in peptic ulcer disease and gastroesophageal reflux disease. There is a real concern about the overutilization of PPIs, which will lead to significant high cost and undesirable outcomes. Despite that most of PPIs are classified as prescribed medications, yet most of their users take them without prescription in Saudi Arabia. Therefore, it was important to understand community pharmacists practice in dealing with PPIs and to evaluate their despising pattern of these medications.

Method: A cross-sectional survey-based study that was carried out between September and December 2017. The survey intended to evaluate the knowledge and attitude of CPs towards use of proton pump inhibitors and was built as an online survey.

Results: The results of this study showed that almost all CPs prescribe anti-ulcer drugs for their patients. Most of the participants (68.4%) have prescribed PPI for acute gastritis (68.4%), prophylaxis for stress ulcers (17.7%) and stress ulcer (11.1%). 54.9 percent of the participants recommend using acid suppression drugs for 1 to 2 weeks when they prescribe them to their patients. Thirty-two percent of the respondents had reported adverse events with PPIs. The study showed a significant association between length of work experience in community pharmacy and reporting adverse events.

Conclusion: Community pharmacists in Saudi Arabia usually recommend and prescribe PPIs to their patients. Most of them have some knowledge on PPIs indications and side effects. Managing OTC PPI use in the community pharmacy setting is necessary to promote both patient and medication safety.

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1. Introduction

Proton pump inhibitors (PPIs) effectively suppress acid secretion and play an important role in peptic ulcer disease and gastroesophageal reflux disease (Wolfe and Sachs, 2000). PPIs also used as protectant agent in stress ulcer disease and along with the use of NSAID (Wolfe and Sachs, 2000). It is estimated that over \$13 million sales of PPI prescriptions occurred worldwide (Katz, 2010). This rise a concern about the overutilization of PPIs, which will

lead to significant high cost and undesirable outcomes such as clostridium difficile, acute interstitial nephritis and microscopic colitis (Katz, 2010). In addition, they may lead to minerals and vitamins malabsorption such as calcium, magnesium and vitamin B12 (Abraham, 2012).

The introduction of a standardized guideline on prescribing PPI helped in decreasing inpatient use of PPI prescriptions, only among patients not receiving PPIs at the time of hospital admission (Yachimski et al., 2010). This support that the majority of prescriptions are among outpatient sittings and are taking care by community pharmacists (Yachimski et al., 2010). Community pharmacists' knowledge and attitude toward PPIs play an important role in optimizing the use of PPI and to prevent any adverse event, drug-drug interaction or inappropriate use PPIs.

In view of this, we carried out a questionnaire-based study to evaluate the knowledge and attitude of community pharmacists (CPs) in Riyadh city, towards the use of gastric acid suppressants particularly, proton pump inhibitors (PPIs). Despite that these

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medications are prescribed medications, many community pharmacies in Saudi Arabia still dispense them without prescription. Therefore, we have used the term ‘prescribed’ instead of ‘dispensed’ throughout this study. The aim of this study is to evaluate the knowledge of community pharmacists about this class of medications and to demonstrate their attitude toward despoising them to patients in Saudi Arabia.

2. Methods

This is a cross-sectional survey-based study that was carried out between September and December 2017. The survey intended to evaluate the knowledge and attitude of CPs towards use of proton pump inhibitors and was built as an online survey. The survey link was emailed to manager of pharmacy chains. The survey was involved to a cover letter. It clarified the nature and objectives of the study. The questionnaire was composed of two sections: questions to describe demographics of CPs; and questions to assess knowledge and attitude of CPs towards use of PPIs. The knowledge and attitude questions were adapted and modified from a previous study (Padhy et al., 2014). It comprised of questions with respect to number of patient encounters, decision of acid suppressive medications, duration of treatment, favored route of administration and knowledge of adverse effect reactions. The adapted version of the original survey was validated by 30 community pharmacists before delivering it to respondents. Reliability test was done and the Cronbach's alpha coefficient was 0.78.

All collected data were entered into Microsoft Excel 2007 and then transferred into the SPSS version 24 for Windows for analysis. Fisher's exact test was conducted to find any significant association between respondents' demographic characteristics and knowledge items at a significance level of 0.05.

3. Results

A total of 1219 respondents completed the survey. The majority of the pharmacists (87.2%) were between 25 and 35 years of age. Most of the participants (75.4%) have less than 10 years of practice

Table 1
Demographic data of participated community pharmacists (n = 1219*).

	n	Percent (%)
<i>Age in years</i>		
25–35	1063	87.2
36–45	142	11.6
46–55	12	1.0
Above 55 years	1	0.2
<i>Experience in community pharmacy in Saudi Arabia</i>		
Less than 6 months	86	7.1
More than 6 months	101	8.3
More than one year	150	12.3
More than 2 years	881	72.3
<i>Years of practice</i>		
Less than 10 years	925	75.9
11–20	278	22.8
21–30	10	0.8
31–40	5	0.4
More than 40 years	1	0.1
<i>Country of graduation</i>		
Egypt	1134	93
Yemen	46	3.8
Saudi Arabia	16	1.3
Sudan	8	0.6
Others	15	1.2

* Numbers and percentage don't add up to total (100%) because of missing data.

in community pharmacy setting. Table 1 summarizes all demographic data collected.

The results of this study showed that almost all CPs prescribe anti-ulcer drugs for their patients (Table 2). Moreover, this study found that most acid suppressing drugs that are prescribed by CPs were PPI (65.5%) and H2 receptors blockers (32.3%). Most of the participants (68.4%) have prescribed PPI and H2 receptors blockers for acute gastritis (68.4%), prophylaxis (17.7%) and stress ulcer (11.1%). It was interesting that most of CPs read package inserts of acid suppression drugs before recommending them to their patients (67.4%). 54.9 percent of the participants recommend using acid suppression drugs for 1–2 weeks when they prescribe them to their patients (see Table 3).

Furthermore, this study did not find any statistically significant association between participants' demographics and the prescribing patterns of these medications ($p > 0.05$).

This study found that most of respondents believed that PPIs are the first line selection as acid suppression drugs. Approximately all CPs recommended oral dosage form when prescribe PPIs. On the other hand, thirty-two percent of the respondents had reported adverse events with PPIs. These adverse events included nausea/vomiting (12.1%), hypersensitivity rash (11.9%) and diarrhea (7.5%).

Additionally, this study revealed a significant association between length of work experience in community pharmacy and reporting adverse events. Pharmacists who have been working in community pharmacy setting in Saudi for more than 2 years of experience have more tendency to report any adverse events of PPIs compared to others ($p = 0.025$). Also, there was a significant associated between country of graduation and adverse effect reporting pattern (Table 4).

Table 2
Community pharmacists' attitude towards prescribing acid suppressing medications.

Questions	n (%)
<i>Do you prescribe acid suppression drugs for your patients?</i>	
Yes	1149 (94.3)
No	70 (5.7)
<i>What percentage of patients require acid suppression drugs?</i>	
90–100%	46 (3.8)
60–89%	269 (22.1)
30–59%	537 (44.1)
Less than 30%	367 (30.1)
<i>Most common indication for prescribing acid suppression drugs (more than one answer)</i>	
Acute gastritis	934 (68.4)
Stress ulcer prophylaxis	135 (11.1)
Along with NSAIDs	216 (17.7)
Others	31 (2.5)
<i>Acid suppression drug that are preferably prescribed</i>	
PPI	799 (65.5)
H2 receptor blocker	394 (32.3)
Others	26 (2.1)
<i>Do you read package insert of the acid suppression drugs before prescribing them</i>	
Yes	822 (67.4)
No, not required	290 (23.8)
No, don't have time	70 (5.7)
No, never thought of it	37 (3.0)
<i>Most common route of administration preferred by you</i>	
Oral	1209 (99.2)
Parenteral	10 (0.8)
<i>Duration of prescribing acid suppression drugs</i>	
Less than 1 week	315 (25.8)
1–2 weeks	669 (54.9)
2–4 weeks	205 (16.8)
More than 4 weeks	30 (2.5)

Table 3
Knowledge about various adverse effects associated with proton pump inhibitors.

Questions	Number (Percentage %)
<i>Have you ever encountered any adverse event during the administration of PPIs</i>	
Yes	284 (23.3)
No	935 (76.7)
<i>If yes what was/were the adverse event(s) observed*</i>	
Rash/hypersensitivity	145 (11.9)
Nausea/vomiting	148 (12.1)
Diarrhea	92 (7.5)

* Numbers and percentage don't add up to total (100%) because of missing data.

Table 4
Association between respondents demographic and knowledge of adverse event reactions.

Variables	Encountered any adverse event during the administration of PPIs		P value
	Yes (%)	No (%)	
<i>Age group</i>			
25–35	255 (24)	808 (76.0)	0.083*
36–45	24 (16.9)	118 (83.1)	
46–55	5 (41.7)	7 (58.3)	
More than 55 years	–	2 (100)	
<i>Experience in CP Saudi Arabia</i>			0.025
Less than 6 months	31 (36.0)	55 (64.0)	
More than 6 months	21 (20.8)	80 (79.2)	
More than one year	38 (25.3)	112 (74.7)	
More than 2 years	194 (22.0)	687 (78.0)	
<i>Years of practice</i>			0.13*
Less than 10 years	231 (25)	694 (75)	
11–20	50 (18)	228 (82.0)	
21–30	2 (20)	8 (80.0)	
31–40	1 (20)	4 (80)	
More than 40 years	–	1 (100)	
<i>Country of graduation</i>			0.001
Egypt	253 (22.3)	881 (77.7)	
Yemen	21 (45.7)	25 (54.3)	
Saudi Arabia	8 (50)	8 (50)	
Sudan	–	8 (100)	
Others	2 (13.3)	13 (86.7)	

* Fisher's exact test.

4. Discussion

To the best of our knowledge till date, this is the first study which has evaluated the prescribing pattern, knowledge and attitude of CPs towards use of proton pump inhibitors (PPI) in community settings in Saudi Arabia. Not much literature was identified nationally and internationally about knowledge and attitudes of community pharmacist toward proton pump inhibitors use, however, most of the literature reported physicians' and patients' attitudes toward these medications (Nawas et al., 2016; Gawron et al., 2013; Boardman and Heeley, 2015; Nexium Control, 2014). This study would add a significant contribution to the efficacy and safety of PPI use in community pharmacy setting in Saudi Arabia and would serve as a reference for the much-needed upcoming studies.

Despite that most of PPIs are classified as prescribed medications, yet most of their users take them without prescription in Saudi Arabia. Therefore, it was important to understand community pharmacists practice in dealing with PPIs and to evaluate their despising pattern of these medications. The results revealed that the majority of the respondents prescribe proton pump inhibitors to nearly half (44%) proportion to their patients. This result was lower than other results in previously published studies conducted among medical residents, where it showed that they prescribe PPIs

to nearly 90% of their patients (Padhy et al., 2014). In addition, another study reported that physicians prescribe PPIs to almost 99% of their patients in an outpatient setting (Nawas et al., 2016). In our study, most of the community pharmacists consider PPIs as first choice when need acid suppression drugs. This trend of preferring PPIs over H2 blockers is predominant globally (Wolfe and Sachs, 2000)

In addition, this study showed that the most common indication for PPIs was acute gastritis (68%) followed by ulcers prophylaxis (17%), which is similar to a study conducted among medical residents and reported same findings (Padhy et al., 2014). However, another study conducted on Lebanese population found that 34% of the patients took PPIs for stomach protection, 23.8% for GERD, 19.5% as a concomitant treatment with NSAIDs and 14.9% for gastric ulcer (Nawas et al., 2016).

Safety of PPIs is well documented in many studies; some studies confirmed that PPIs administration could be limited to once daily (Gawron et al., 2013; Boardman and Heeley, 2015; Nexium Control, 2014; Egapal, 2012). Most of the literature revealed that PPIs could be safe for short term treatment up-to 14–28 days without referring to a specialized physician (Gawron et al., 2013; Boardman and Heeley, 2015; Nexium Control, 2014; Egapal, 2012), while our study results found that most of the community pharmacists prescribe PPIs for 1–2 weeks. This is maybe due to that patients may feel better after a short period of PPIs use (Pantoloc Control, 2014). Also, this is maybe related to the mechanism of PPIs where they have fast effect compared to other antacids (Pantoloc Control, 2014; Zolt, 2013). PPIs and antacids have been available in pharmacies for decades and it is proven in previous studies that PPIs use has positive impact on quality of life for millions of patients in both community (French-Belgian Consensus Conference, 2000; Schubert, 2010; Caro et al., 2001; Weijenborg et al., 2012). These findings justified the long history of OTC use for PPIs for heartburn treatment (Kahrilas et al., 2008).

Antacids and H₂ receptors blockers have been available in pharmacies for decades (Holtmann et al., 2011). Overutilization of PPI has been found in previously published studies (Holtmann et al., 2011; Oster et al., 1990; Heidelbaugh and Goldberg, 2009; Naunton et al., 2000; Heidelbaugh et al., 2010; Hoover et al., 2009; Mat Saad et al., 2005; Strid et al., 2003) which may lead to many adverse events, however, our study results showed small number of reported adverse events among PPIs users. This is maybe due to several barriers in reporting adverse events among pharmacists in Saudi Arabia. Although some studies have confirmed that the rate of adverse effects with PPIs use has been shown to be low (Wolfe and Sachs, 2000), other studies reported that continue use of PPI can lead to serious adverse events such as increased incidence of clostridium difficile colitis, community acquired pneumonia, methycobalamin deficiency (Zink et al., 2005; Boutet et al., 1999), and duodenal G-cell tumors (Hungin et al., 2012).

Many drug utilization studies have reported the overuse of PPIs in various developed and developing countries, however, there is a need to have systematic assessment of perceptions and practices of health care providers towards the use of this class of drugs (Pillans et al., 2000; Khara and Pitchumoni, 2009). Pharmacists are in the position to guide the selection of the best treatment by confirming the diagnosis, referring patients with unclear symptoms to physicians, and educating patients on the proper use of their OTC medications. Managing OTC PPI use in the community pharmacy setting is necessary to promote both patient and medication safety.

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