

# Original Research Article

## **The Outpatient Prescribing Pattern of Sevelamer in Al Seih**

### **ABSTRACT**

**Aim:** The present study aimed to explore the outpatient prescribing pattern of sevelamer in Al Seih.

**Methodology:** This was a retrospective study that included reviewing the electronic prescriptions that contained sevelamer among outpatients in the city of Al Saih.

**Results:** During 2017 and 2018, 47 patients received sevelamer from the outpatient pharmacy in a public hospital in Alkharj. More than 23 % of the prescriptions were prescribed in January and about 21.28% of the prescriptions were prescribed in May. All of the prescriptions that contained sevelamer were prescribed for the duration of 1 month (100.00%), all of the sevelamer prescriptions were written by residents (100.00%) and all of the prescriptions were prescribed by nephrology department (100.00%). More than half of the patients who received sevelamer were females (60.00%). The age of about 90% of the patients who received sevelamer was more than 39 years.

**Conclusion:** The present study showed that the prescribing of sevelamer was uncommon in Al Seih. Further studies are required to investigate the pattern and the frequency of sevelamer in the outpatients setting and in other settings.

**Keywords:** Outpatient, prescribing, sevelamer, use.

### **INTRODUCTION**

Patients with end-stage renal disease retain phosphorus and can develop hyperphosphatemia. Management of hyperphosphatemia includes the decrease in dietary phosphate intake, inhibition of the intestinal absorption of phosphate with phosphate binders, and the removal of phosphate with dialysis [1].

Sevelamer is a phosphate binder, so it binds phosphorus that the patient gets from foods in his diet and prevents it from being absorbed into his blood stream [2]. It is indicated mainly for the control of serum phosphorus in patients with chronic kidney disease on dialysis [3]. In addition to that, it could also be used to control of

hyperphosphataemia in adult patients with chronic kidney disease not on dialysis with serum phosphorus  $\geq 1.78$  mmol/l [4].

Sevelamer should be used within the context of a multiple therapeutic approach, which could include vitamin D and calcium supplement to control the development of renal bone disease [4]. Perry and Plosker reported that in the EU, sevelamer carbonate is approved in adult CKD patients who require dialysis and in those who do not require dialysis with serum phosphate levels  $\geq 1.78$  mmol/L, while in the USA sevelamer carbonate is approved only for adult CKD patients who require dialysis [5]. Furthermore, Perry and Plosker reported that sevelamer carbonate may be useful for the management of patients at risk of metabolic acidosis and for individuals requiring treatment with a phosphate binding agent that does not contain aluminium or calcium [5,6].

The most common adverse events with sevelamer carbonate are gastrointestinal in nature [5]. Common side effects of sevelamer may include vomiting, nausea, loss of appetite, stomach pain, gas, upset stomach, bloating, constipation, diarrhea, feeling tired, joint pain, and itching [7].

Sevelamer may interfere with the effectiveness of several medications such as mycophenolate, ciprofloxacin, levothyroxine by decrease their absorption by the stomach [8]. According to Food and Drug Administration (FDA) data, oral drugs that have demonstrated interaction with sevelamer and are to be dosed separately from it include ciprofloxacin and mycophenolate mofetil [9]. Furthermore, FDA stated that sevelamer is contraindicated in patients with bowel obstruction. [9] Therefore, this medicine should be taken only as directed by health care personnel with the correct dose and frequency, and duration [10]. Patient health status should be checked by his doctor at regular visits to ensure that this drug is working properly and it is important check for unwanted effects [11].

In general, there is a lack of studies about the frequency of sevelamer use and its prescribing pattern. So, the present study aimed to explore the outpatient prescribing pattern of sevelamer in Al Seih.

## **METHODOLOGY**

This was a retrospective study that included reviewing the electronic prescriptions that contained sevelamer among outpatients in the city of Al Saih. The inclusion criteria included outpatient prescriptions that contained sevelamer in

2018. Exclusion criteria included all of the inpatient prescriptions in addition to the outpatient prescriptions that didn't contain sevelamer

The collected data included total number of prescribed, the number of prescriptions that included sevelamer and that were prescribed during different months of the study, and the personal data of patients who received sevelamer in 2018.

The data were collected from electronic medical records as an Excel file and After that the descriptive data were represented as frequencies and the percentages.

## RESULTS and DISCUSSION

During 2017 and 2018, 47 patients received sevelamer from the outpatient pharmacy in a public hospital in Alkharj (27 prescriptions were prescribed in 2017 and 20 prescriptions in 2018). The total number of the prescriptions that contained sevelamer is shown in table 1.

**Table 1. The total number of sevelamer prescriptions.**

Year	Number	Percentage
2017	27	57.45
2018	20	42.55
Total	47	100

Table 2 shows the number of prescriptions that included sevelamer and that were prescribed during different months of the study. More than 23 % of the prescriptions were prescribed in January (January 2017 and January 2018) and about 21.28% of the prescriptions were prescribed in May (May 2017 and May 2018).

**Table 2. Number of sevelamer prescriptions that were prescribed during different months of the study.**

Month	Number	Percentage
January*	11	23.40
February	4	8.51
March	3	6.38
April	5	10.64
May	10	21.28
June	5	10.64
July	2	4.26
August	0	0.00
September	3	6.38
October	2	4.25
November	1	2.13
December	1	2.13

Total	47	100
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\* January means January 2017 and January 2018.

All of the prescriptions that contained sevelamer were prescribed for the duration of 1 month (100.00%), all of the sevelamer prescriptions were written by residents (100.00%) and all of the prescriptions were prescribed by nephrology department (100.00%).

More than half of the patients who received sevelamer were females (60.00%). The age of about 90% of the patients who received sevelamer was more than 39 years. Furthermore, about 95% of patients had insurance. Table 3 shows the personal data of the patients.

**Table 3.** The personal data of the patients.

Variable	Category	Number	Percentage
Gender	Female	12	60.00
	Male	8	40.00
Age	20-29	1	5.00
	30-39	1	5.00
	40-49	4	20.00
	50-59	7	35.00
	60-69	3	15.00
	More than 69	4	20.00
Nationality	Saudi	12	60.00
	Non- Saudi	8	40.00
Patient Insurance	Yes	19	95.00
	No	1	5.00

The present study showed that the prescribing of sevelamer was uncommon in Al Seih due to the availability of several alternatives such as calcium carbonate, calcium acetate, lanthanum carbonate, aluminum hydroxide, and magnesium hydroxide [12]. Several studies reported that the sevelamer is used because it was showed to be as effective as calcium-based binders in lowering phosphate, but without the risk of hypercalcemia [13-19]. But the use of sevelamer is less common than calcium-containing phosphate due to the difference in the medication cost. Ossareh reported that calcium-containing phosphate binders are cheap and effective, and provide an important mineral and that sevelamer is much more expensive than calcium-containing phosphate binders [12]. Ossareh also reported also that the use of sevelamer could be less in developing countries with lower health care budgets and should be studied according to local socioeconomic and budget conditions [12].

More than half of the patients who received sevelamer were females. Most of the patients who received sevelamer was more than 39 years. Kazancioğlu reported that gender and age are risk factors to develop chronic renal failure and that older individuals have a higher risk to develop chronic kidney failure than younger individuals [18]. In the CREDIT study, the odds ratios of chronic kidney disease ranged from 1.45 to 2.18 for every 10-year increase in age among subjects older than 30 years of age in Turkey [19]. Many registries including the Japanese Society for Dialysis Therapy have demonstrated that end stage renal disease is more frequent among men [20,21]. In contrast, the CREDIT study demonstrated that chronic kidney disease is higher in women than in men (18.4 vs. 12.8%) in Turkey [19].

## CONCLUSION

The present study showed that the prescribing of sevelamer was uncommon in Al Seih. Further studies are required to investigate the pattern and the frequency of sevelamer in the outpatients setting and in other settings.

## Ethical Approval:

As per international standard or university standard ethical approval has been collected and preserved by the authors.

## ACKNOWLEDGMENT

" This Publication was supported by the Deanship of Scientific Research at Prince Sattam bin Abdulaziz University"

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