

## Original Research Article

### Bromhexine use in the Outpatient Department in a Public Hospital in Al-Kharj

#### ABSTRACT

**Aim:** This study was conducted to demonstrate the prescribing pattern of bromhexine in a public hospital in Alkharj.

**Methodology:** This is a retrospective study that included evaluating outpatient antibiotic prescriptions from 1<sup>st</sup> of January/2018 to 30<sup>th</sup> of June/2018 in a public hospital Al-kharj. The collected data were the personal data of the patients, the prescribing' departments, the duration of bromhexine use, and the level of the prescribers.

**Results:** Most of the patients were in the age group of 20-29 (32.35%) followed by 10-19 (20.59%). About 73.53% of the prescriptions were written by the emergency department, followed by the chest department (20.59%). All of the prescriptions were written by residents. Most of the patients used bromhexine for 5 days (76.47%) followed by 1 week (20.59%).

**Conclusion:** The present study showed that bromhexine use in the outpatient setting was uncommon. More studies are needed to explore the frequency of prescribing other mucolytic agents.

**Keywords:** Bromhexine, Mucolytic, outpatient, prescribing,

## **INTRODUCTION**

Bromhexine is a mucolytic agent, used to break up excessive phlegm associated with a chesty cough [1]. Mucolytic agents are usually prescribed for patients who have a chronic cough such as patients with chronic obstructive pulmonary disease (COPD) and patients with cystic fibrosis [1]. Mucolytics exert their effect on the mucus layer lining the respiratory tract with the motive of enhancing its clearance [2].

Bromhexine is an over the counter medicine that is used to manage cough and chest congestion [3]. This medicine comes in a liquid form and a tablet form. The use of bromhexine could cause several side effects to include rash, nausea, diarrhea, pain, and vomiting [3].

The outpatients setting provides services or treatments for patients who don't require hospitalization. The location itself doesn't define whether each patient is an outpatient or inpatient. The duration of stay, not the type of establishment, determines patients' status [4].

In order to promote the rational prescription pattern and to improve the prescription quality, there is a need to explore the different factors that affect prescribers' prescribing patterns. This study was conducted to demonstrate the prescribing pattern of bromhexine in a public hospital in Alkharj.

## **METHODOLOGY**

This is a retrospective study that included evaluating outpatient antibiotic prescriptions from 1<sup>st</sup> of January/2018 to 30<sup>th</sup> of June/2018 in a public hospital Al-kharj.

The data were collected in the first half of 2018 from January to June after getting the IRB committee Approval. The collected data were the personal data of the patients, the prescribing' departments, the duration of bromhexine use, and the level of the prescribers.

The data were collected and analyzed using Microsoft Excel Spreadsheet and the descriptive data were represented by numbers and after that, the percentages were calculated for each variable.

## RESULTS and DISCUSSION

During the study period from Jan/2018 till June/ 2018, only 34 patients received bromhexine. More than 85% of the patients were male patients. Most of the patients were in the age group of 20-29 (32.35%) followed by 10-19 (20.59%). Table 1 shows the personal data of the patients who used bromhexine during the study period.

**Table 1.** The personal data of the patients.

Variable	Category	Number	Percentage
Gender	Male	29	85.29
	Female	5	14.71
Age	10-19	7	20.59
	20-29	11	32.35
	30-39	5	14.71
	40-49	4	11.76
	50-59	1	2.94
	60-69	2	5.88
	More than 70	4	11.76
Nationality	Saudi	30	88.24
	Non- Saudi	4	11.76

Table 2 shows the departments that wrote bromhexine prescriptions. About 73.53% of the prescriptions were written by the emergency department followed by the chest department (20.59%).

**Table 2.** The prescribing' departments.

Department	Number	Percentage
Chest	7	20.59
Cardiology	1	2.94
Emergency	25	73.53
Nephrology	1	2.94

Table 3 shows the duration of bromhexine use. Most of the patients used bromhexine for 5 days (76.47%) followed by 1 week (20.59%).

**Table 3.** The duration of bromhexine use.

Duration	Number	Percentage
2 Weeks	1	2.94
1 week	7	20.59
5 Days	26	76.47

Table 4 shows the level of the prescribers who prescribed bromhexine. All of the prescriptions were written by residents.

**Table 4.** The level of the prescribers.

<b>Prescribers Level</b>	<b>Number</b>	<b>Percentage</b>
Specialist	0	0.00
Resident	34	100.00
Consultant	0	0.00

More than half of the patients were less than 30 years and were male patients. Most of these patients used bromhexine for 5 days. Bromhexine should be used for several days and if the patients need it for a long period, he should use it under medical supervision [5]. Saudi Food and Drug Authority stated that the duration of treatment should be determined on an individual basis depending on the indication and the course of the disease and that bromhexine tablets should not be taken for more than 4 - 5 days without medical advice [6].

All of the prescriptions that include bromhexine were written by residents and this is rational because bromhexine is an over-the-counter medicine. Bromhexine is generally safe but could cause an occasional and mild side effects such as dizziness, bloatedness, headache, indigestion, diarrhea, nausea, sweating and skin rashes [7]. Nonetheless, it can cause some serious side effects and can lead to some serious health problems [8]. Bhagat and Rachana reported that bromhexine is generally well tolerated and can also be given to children of different ages [9]. Moreover, Bürgi reported that this compound is accepted well as it has a low level of toxicity [10].

Most of the prescriptions were written by the emergency department followed by chest department and this is rational because it is a mucolytic used mainly for patients with respiratory conditions and these conditions are common in emergency and chest department. Previous studies informed that bromhexine is used as a secretolytic expectorant for the effective treatment of cough with phlegm [11,12]. Additionally, bromhexine also has antioxidant properties used in upper as well as lower respiratory tract infections such as broncho-pneumonia, bronchiectasis, acute and chronic bronchitis, sinusitis, mixed respiratory conditions, diseases like allergic asthma, and obstructive airway diseases that are complicated by infections. [13-20].

## **CONCLUSION**

The present study showed that bromhexine use in the outpatient setting was uncommon. This could be due to the availability of several alternatives to bromhexine. More studies are needed to explore the frequency of prescribing other mucolytic agents.

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## REFERENCES

1. Patient.info. Mucolytics. Accessed 06 November 2021. Available: [https://patient.info/chest-lungs/chronic-obstructive-pulmonary-disease-leaflet/mucolytics\\_](https://patient.info/chest-lungs/chronic-obstructive-pulmonary-disease-leaflet/mucolytics_)
2. Gupta R, Wadhwa R. Mucolytic Medications. [Updated 2021 Jul 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021. Available: <https://www.ncbi.nlm.nih.gov/books/NBK559163/>.
3. Rxwiki. Bromhexine. Accessed 06 November 2021. Available: <https://www.rxwiki.com/bromhexine>.
4. Sgu. Inpatient-versus-outpatient. Accessed 06 November 2021. Available: <https://www.sgu.edu/blog/medical/inpatient-versus-outpatient/>
5. Healthhub. Bromhexine tablet. Accessed 06 November 2021. Available: <https://www.healthhub.sg/a-z/medications/19/Bromhexine-Tablet>.
6. SFDA. Bisolvon. Accessed 06 November 2021. Available: [https://old.sfda.gov.sa/ar/SURE\\_DrugList\\_Attachments/675-human-EnHealthPractitionersPamphlet-0052-06-DE-SPC\\_.pdf](https://old.sfda.gov.sa/ar/SURE_DrugList_Attachments/675-human-EnHealthPractitionersPamphlet-0052-06-DE-SPC_.pdf).
7. Healthhub. Bromhexine syrup. Accessed 06 November 2021. Available: <https://www.healthhub.sg/a-z/medications/20/Bromhexine-Syrup>.
8. Medicoverhospitals. Bromhexine. Accessed 06 November 2021. Available: [https://www.medicoverhospitals.in/medicine/bromhexine\\_](https://www.medicoverhospitals.in/medicine/bromhexine_)
9. Bhagat A, Rachana R. Bromhexine: A Comprehensive Review. *IJBMR*. 2018;9(3):6455-6459.
10. Bürgi H. Erste klinisch-experimentelle Erfahrungen mit dem Mucolyticum Bisolvon. *Schweiz Med Wochenschr*. 1965;95:274-279.
11. Engelhorn R, Püschmann S. Pharmakologische Untersuchungen über eine Substanz mit sekretolytischer Wirkung. *Arzneimittelforsch*. 1963;13:474-480.
12. Boyd EM, Sheppard EP. The expectorant activity of bisolvon. *Arch Int Pharmacodyn Ther*. 1966;163:284-295.
13. Boner AL, Antolini I, Valletta EA, Andreoli A, Mengoni M. Treatment of upper and lower respiratory tract infections in children by a combination of cephalexin plus bromhexine: a report of 100 cases. *Drugs Exp Clin Res*. 1984;10(7):455-458.
14. Molina L. Use of Na-274 in bronchopneumonia in infants. *Med Klin*. 1970; 104:63-66.
15. Crimi P, Zupo S, Mantellini E, Mereu C, Crimi E, Vignolo C, Valenti S. The effect of bromhexine on phospholipid concentration in bronchial and bronchoalveolar lavage. *Pan Med*. 1986; 28(3):303-305.

16. Matts SGF, Zorbala-Mallios H, Southgate J. Sputum fibre systems in exacerbations of longstanding pulmonary disease. A comparison of antibiotics and bromhexine (Bisolvan). Clin Trials J. 1973; 10:75-80.
17. Tarantino A, Stura M, Marengo G, Leproux GB, Cremonesi G. Advantages of treatment with bromexime in acute infant sinus. Min Ped. 1988;40:649-652.
18. Nesswetha W. Criteria of drug testing in industrial practice, demonstrated by a cough remedy. Arzneimittelforschung. 1967;17(10):1324-1326.
19. Götz H, Fischer M. Verhalten der elektrophoretisch, biochemisch und immunologisch definierbaren proteine des sputums unter sekretolyse. Cl in Ch im Ac ta. 1970;30(1):53-64.
20. Shimura S, Okubo T, Maeda S, Aoki T, Tomioka M, Shindo Y, Takishima T, Umeya K. Effect of expectorants on relaxation behavior of sputum viscoelasticity in vivo. Biorheology. 1983;20(5):677-83.

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