



A Review Article On “Prevalence Use Of Azithromycin As Self Medication”

singh kumar Suraj¹, Singh P Neha.², kumar Shubham.¹, singh kumar Rajan.¹

¹Student, Dev Bhoomi Institute of pharmacy & research, Dehradun

²Assistant Professor. School of pharmacy & research, DBUU, Dehradun

ABSTRACT

Azithromycin is a commonly self-medicated antibiotic. It is frequently chosen by individuals for self-medication purposes. However, It is vital to remember that self-treatment with azithromycin should be done with caution and under the guidance of a healthcare professional. Azithromycin is primarily utilized for the treatment of bacterial infections in different body areas such as the lungs, sinuses, and skin. It is not effective against viral infections and should not be used as a pain reliever. While The use of it while nursing is typically safe., individuals with cardiac issues ought to stay away from it. It is crucial to take the full course of antibiotics as prescribed by a doctor and refrain from using antibiotics without a prescription to prevent irrational and injudicious use.

KEYWORD : azithromycin , pain- reliever , antibiotic , self-medication , sinuses

1.Introduction

Azithromycin is a commonly used macrolide antimicrobial, that is primarily used to treat bacterial infections. The medication was first authorized for usage in the US in 1991 and has since become one of the most widely prescribed antibiotics in the world. Azithromycin operates by preventing the formation and replication of bacteria. Specifically, it binds to the 50S subunit of blocking the bacterial ribosome, which in turn formation of peptide bonds between amino acids and inhibiting protein synthesis. This eventually results in the demise of the bacteria and the resolution of the infection [1].

Azithromycin is commonly utilized to address certain bacterial diseases, including as respiratory tract infections, skin infections, ear infections, and sexually transmitted infections, among others. It is also used as a prophylactic treatment for individuals who have been exposed to certain bacterial infections, such as pertussis and meningococcal disease [2].

One of the key advantages of azithromycin over other antibiotics is its lengthy half-life that permits once-daily dosage and shorter treatment durations. Additionally, the medication has a broad spectrum of activity indicating that it works well against a variety of of bacterial species [3].

Despite its efficacy, azithromycin is not without its potential side effects. Headache is a common side effect, as are gastrointestinal problems such as nausea, vomiting, and diarrhea, and dizziness. Rare but serious side effects can include liver damage and cardiac arrhythmias.

In recent years, azithromycin has also been studied due to the possibility of using it to treat other illnesses, like asthma and cystic fibrosis. While the medication has shown prospects in these domains, more investigation is necessary to completely grasp its possible advantages [4][5]

Overall, azithromycin is a frequently utilized and effective antibiotic that is used to treat a variety of bacterial infections. While it is generally well-tolerated, patients should be mindful of any possible negative effects and should always heed the advice of their healthcare practitioner for use.

1.1 Availability and Accessibility

Azithromycin is a widely available antibiotic that is easily accessible in various forms for the treatment of bacterial infections [7]. It is primarily used to treat respiratory, enteric, and genitourinary infection. The usual dosage of azithromycin is A dose of 250 or 500 mg, administered once every three to five days. A greater dose could be applied in cases of serious infections. [6].

Azithromycin is available in different forms such as tablets, suspension, and powder for solution. This allows for flexibility in administration, making it easier for patients to take the medication as prescribed [8]. The fact that azithromycin is ineffective against viral infections should not be overlooked. In terms of accessibility, azithromycin is subsidized by the Pharmaceutical Benefits Scheme in Australia for various indications including community-acquired pneumonia, respiratory infections, sexually transmitted infections, and bacterial enteritis [7]. This means that it is more affordable and easily accessible for patients in Australia who require this medication.

When using azithromycin, It is vital to take the recommended dosage as directed, and not misuse or overuse the medication. Like any medication, azithromycin has potential side effects and may interact with other commonly prescribed drugs [7]. It's critical to understand these possible hazards and speak with a healthcare provider, professional if any concerns arise.

1.2 Misconceptions and Overuse

Azithromycin, a commonly prescribed antibiotic, has been the subject of misconceptions and overuse in recent times. Several studies have shed light on the potential side effects of prolonged azithromycin use, particularly in those with long-term lung conditions [11]. A comparative study of six randomized controlled trials revealed that patients receiving azithromycin had an increased risk of bacterial resistance and impaired hearing. However, there was a decreased risk of bacterial colonization [9].

During the There has been an increase in the COVID-19 epidemic, misuse of azithromycin. A study conducted in Jordan found that pharmacies were selling more azithromycin and dispensing it without prescriptions at a significantly higher rate compared to before the pandemic [10]. Moreover, many pharmacists believed that azithromycin could cure COVID-19 patients [11]. This misuse not only contributes to the development of bacterial resistance but also poses a risk of negative consequences.

To address these issues, It is essential to increase awareness of the potential adverse events associated with long-term azithromycin use. Healthcare professionals should exercise caution when prescribing azithromycin, especially for prolonged periods, and closely monitor patients for any signs of bacterial

resistance or impaired hearing. Additionally, strict enforcement of regulations regarding the dispensing of azithromycin is necessary to prevent its misuse and curb the development of bacterial resistance [12][13].

2. Prevalence of Azithromycin as Self-Medication:

2.1 Global Trends and Statistics

Introduction :

Self-medication with antibiotics is a global concern that can lead to antibiotic resistance and adverse drug reactions. Azithromycin, a commonly used antibiotic, is frequently self-medicated due to its availability and broad-spectrum activity. This article aims to explore the global trends and statistics surrounding the prevalence of azithromycin as self-medication.

Prevalence of Azithromycin as Self-Medication: According to a study conducted among medical and dental undergraduate students, it was found that 31.8% of individuals self-medicated with Azithromycin, making it the most commonly used antibiotic for self-medication [13]. Another study conducted in Bangladesh found that the prevalence of antibiotic self-administration, including azithromycin, was 17.97% among adults [14].

2.2 Factors Influencing Azithromycin Self-Medication

Various factors contribute to the prevalence of azithromycin self-medication. The availability of azithromycin without a prescription in retail pharmacies was identified as a primary source for obtaining non-prescription antibiotics [13]. Lack of knowledge about over prescription causing antibiotic resistance and the inability to recognize specific antibiotics were also found to be contributing factors [14].

Medical Conditions for Azithromycin Self-Medication: Sore throat with runny nose was identified as the most common medical condition for which students self-medicated with azithromycin [13]. However, the specific medical conditions for which azithromycin is self-medicated globally are not well-documented.

Educational Intervention and Policy Changes: The studies highlight the need for educational interventions targeting medical and dental students to promote the rational use of antibiotics and prevent the development of antibiotic resistance and adverse drug reactions [13]. Additionally, responsible authorities should address factors contributing to antibiotic self-administration and revise policies to ensure the safe and effective use of antibiotics [14].

2.3 Demographic variations

Azithromycin is a commonly used antibiotic that is prescribed for a variety of bacterial infections, including respiratory infections, skin infections, and sexually transmitted diseases. While it is typically prescribed by a healthcare professional, there is evidence to suggest that some individuals may use azithromycin as a self-medication without a prescription. This practice is concerning, as it can lead to antibiotic resistance and other adverse health outcomes.

The prevalence of azithromycin as a self-medication varies across different demographic groups. Several studies have examined this issue and found that certain populations are more likely to use azithromycin without a prescription. For example, a study conducted in Nigeria found that young adults between the ages of 18 and 35 were more likely to self-medicate with azithromycin compared to older adults. This may be due to a lack of access to healthcare services or a perception that azithromycin is a safe and effective treatment for various ailments [16].

Additionally, research has shown that individuals with lower levels of education and income are more likely to self-medicate with azithromycin. This may be attributed to a lack of awareness about the potential risks of

self-medication and a reliance on over-the-counter medications as a cost-effective alternative to seeking professional medical care.

Furthermore, cultural and social factors can also influence the prevalence of azithromycin self-medication. For example, a study conducted in India found that individuals from rural areas were more likely to use azithromycin without a prescription compared to those living in urban areas. This may be due to limited access to healthcare facilities and a reliance on traditional remedies and self-medication practices within rural communities [17].

Gender differences have also been observed in the prevalence of azithromycin self-medication. Research has shown that men are more likely to self-medicate with antibiotics, including azithromycin, compared to women. This may be due to a perception of self-reliance and a reluctance to seek medical care for minor health issues [17].

It is important to note that the prevalence of azithromycin self-medication can vary across different regions and countries. For example, a study conducted in the United States found that individuals from immigrant communities were more likely to self-medicate with azithromycin compared to those born in the US. This may be attributed to cultural beliefs and practices related to healthcare and the availability of over-the-counter medications in their home countries [15].

3. Case Studies and Reports:

3.1 Case Studies Detailing Azithromycin Self-Medication

Self-medication with azithromycin is a concerning practice due to its potential adverse effects and the development of antibiotic resistance. Several case studies have shed light on this issue, highlighting the need for increased awareness and regulation regarding the use of azithromycin without medical supervision.

Case Study :

A total of 221 undergraduate medical students from this government medical college engaged in the research, resulting in a 73.67% response rate among 300 students. Out of these, 118 had 46.6% girls and 53.4% males. The average age of the responders was 19.73 +/- 1.59 years. The age distribution of the sample was 8.6% (n = 19) for people aged 23–25, 33.9% (n = 74) for people aged 20–22, and 57.4% (n = 125) for those aged 17–19.

84.6% of 187 participants reported using antibiotics for self-medication in the year before the research. Out of 118 pupils, 101 males (85.59%) and 86 females (83.49%) engaged in self-medication. In the first year of MBBS, self-medication was comparatively more common as. The majority of students (32.1%) had only used self-medication once the year before.

The most common form of antibiotic used for self-medication is depicted in Figure 1. Azithromycin accounted for 34.4% of the antibiotics used for self-medication, with amoxicillin coming in second at 29.4% and fluoroquinolones/ofloxacin at 18.6%.

The study discovered that The diseases that led to self-medication were fever (25.1%), gastrointestinal tract infections (18.4%), common cold, cough, and sore throat (62.2%), and skin illnesses (8.3%) and others (8%) (Figure 2).

The rationale behind antibiotic self-medication is depicted in Figure 3. The majority of students self-medicated due to their ease of use of past prescriptions (46.6%), convenience (21.7%), and confidence in their ability to know antibiotics well (11.3%). Over 50% of the study participants (53.1%) obtained knowledge about the medication from previous prescriptions for the same ailment.

Of the responders, 112 (51.4%) bought the medications straight from neighborhood pharmacies. Additional Medications from friends and family (13.4%) and leftover medicine from previous prescriptions (20.4%) were the sources of the pharmaceuticals. [18][19][20].

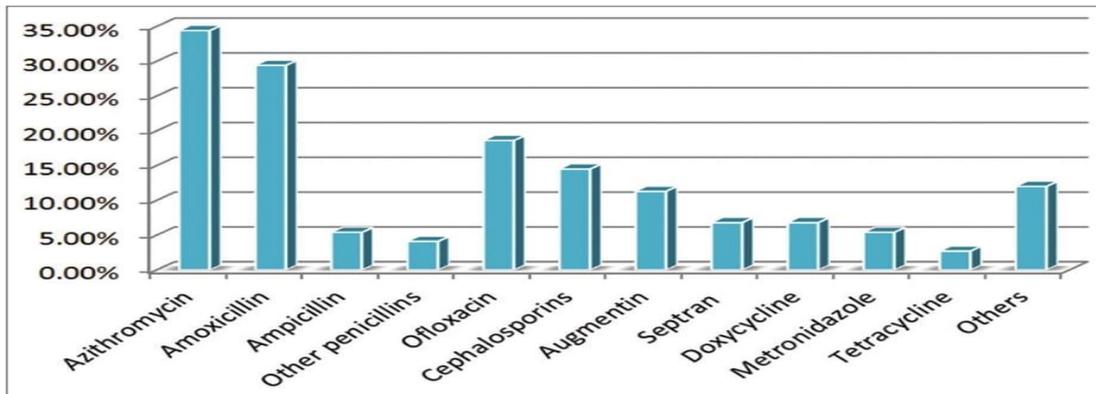


Figure 1: Type of antibiotic used for self medication

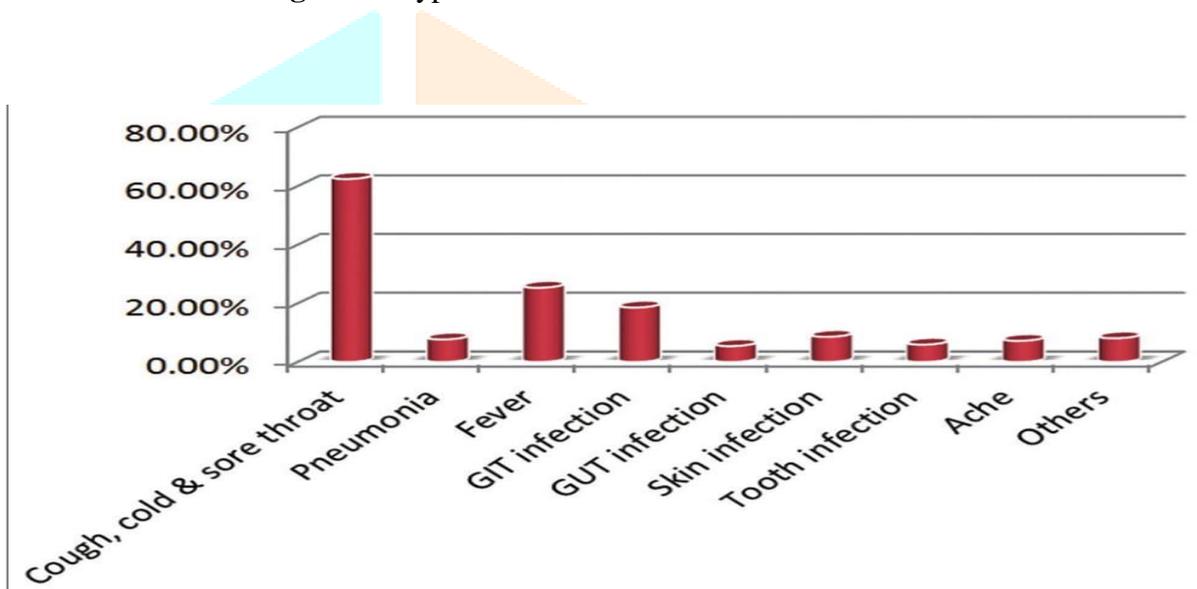


Figure 2: conditions for which students self-medicated

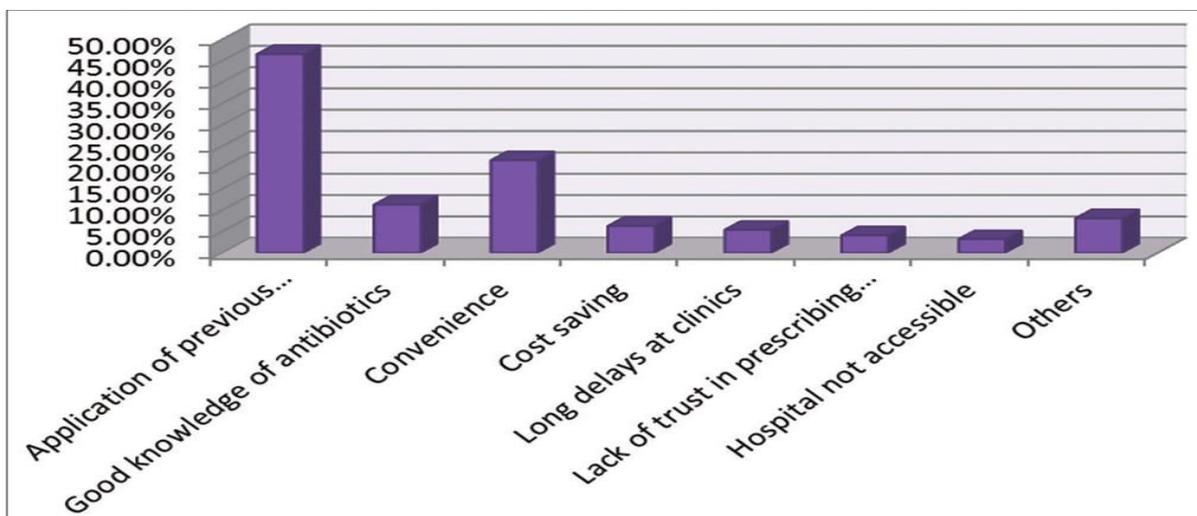


Figure 3: Reasons for self-medication with azithromycin

4. Adverse Events and Complications

The prevalence of self-medication with azithromycin has led to an increase in adverse events and complications associated with its inappropriate use. Azithromycin is generally well-tolerated when used appropriately, but misuse and overuse of this antibiotic can lead to a range of adverse events and complications, With the emergence of resistant antibiotics, drug interactions, and the emergence of treatment-resistant bacterial infections.

One of the most significant adverse events associated with the Antibiotic resistance is the result of improper azithromycin usage. An essential antibiotic for treating a variety of bacterial illnesses is azithromycin, and its misuse can lead to the development of resistance, making it less effective in treating infections. The inappropriate use of azithromycin, such as incorrect

dosage and duration of treatment, can contribute to the emergence of resistance, which results in treatment failure and the community's spread of resistant bacteria [20].

In addition to antibiotic resistance, the inappropriate use of azithromycin can also lead to drug interactions and adverse effects. Azithromycin has the ability to interfere with other prescriptions, such as antacids and certain blood thinners, leading to reduced effectiveness or increased risk of side effects. Furthermore, the misuse of azithromycin can lead to adverse effects such as gastrointestinal disturbances, allergic reactions, and liver toxicity, particularly when used inappropriately or in high doses [21].

The development of bacterial infections resistant to therapy is another serious side effect linked to the improper use of azithromycin. The misuse and overuse of azithromycin can lead to the selection and proliferation of bacteria that are resistant to the antibiotic, making it more difficult to treat infections. This can result in prolonged illness, increased healthcare costs, and the need for more potent and expensive antibiotics to combat the resistant bacteria.

The inappropriate use of azithromycin can also have broader public health implications, particularly in the context of infections contracted during intercourse. Chlamydia is frequently treated with azithromycin; however, improper administration of this antibiotic can result in treatment failure and the emergence of resistant bacterial strains. This can have significant implications for the control and management of sexually transmitted infections, as well as for the overall effectiveness of antibiotic therapy [22].

5. Lessons Learned

The case studies and reports on the prevalence of azithromycin self-medication highlight several important lessons and implications for public health:

1. **Antibiotic Resistance:** The inappropriate use of azithromycin, including self-medication without proper medical supervision, contributes to the development of antibiotic resistance. This can render antibiotics ineffective in treating common bacterial infections, posing a significant public health threat.
2. **Adverse Drug Reactions:** Case studies have demonstrated the potential for adverse drug reactions associated with azithromycin self-medication, including allergic reactions, gastrointestinal disturbances, and cardiovascular risks. These adverse effects underscore the importance of appropriate antibiotic use under the guidance of healthcare professionals.

3. Delayed Diagnosis and Treatment: Self-medication with azithromycin may mask the symptoms of more serious health conditions, leading to delayed diagnosis and treatment. This can have serious implications for patient outcomes and long-term health.

4. Patient Education and Awareness: There is a need for increased patient education and awareness regarding the appropriate use of antibiotics. Healthcare providers should highlight how crucial it is to see a medical professional before starting an antibiotic therapy and the potential risks of self-medication.

5. Regulatory Measures: Regulatory measures and enforcement of prescription requirements for antibiotics, including azithromycin, are essential to mitigate the prevalence of self-medication and ensure responsible antibiotic use.

6. Public Health Interventions: Public health interventions, including educational campaigns and antimicrobial stewardship programs, are critical in addressing the misuse and overuse of antibiotics, including azithromycin, at both the individual and community levels.

6. Conclusion:

Self-medication as a practice with azithromycin is expanding concern, particularly in developing countries where access to healthcare services may be limited. The misuse and overuse of azithromycin may cause antibiotic resistance, making it less effective in treating infections. It is important for healthcare providers and policymakers to address this issue through education and awareness programs, as well as by promoting appropriate antibiotic use and access to healthcare services [18][19][20].

The prevalence of self-medication with azithromycin has led to an increase in adverse events and complications associated with its inappropriate use. The development of antibiotic resistance, drug interactions, adverse effects, and the emergence of treatment-resistant bacterial infections are significant concerns associated with the misuse and overuse of azithromycin. It is important for healthcare providers and policymakers to address this issue through education and awareness programs, as well as by promoting appropriate antibiotic use and access to healthcare services.[21][22]

The prevalence of azithromycin as a self-medication varies across different demographic groups, including age, education, income, culture, and gender. It is important for healthcare professionals and policymakers to consider these demographic variations when developing interventions to address the inappropriate use of antibiotics. Education and awareness campaigns targeted at high-risk populations, as well as improved access to affordable healthcare services, may help the frequency of self-medication with azithromycin and the hazards involved [15][16][17].

Misconceptions and overuse of azithromycin can have serious implications. Proper education and guidelines are essential to ensure the appropriate use of this antibiotic and minimize the risk of adverse effects and bacterial resistance [12][13].

REFERENCES

1. Tunkel AR, et al. Azithromycin versus cefuroxime for the treatment of erythema migrans: a randomized trial. *Ann Intern Med.* 2004;141: 145-151.
2. Hahn DL, et al. Azithromycin for bronchial asthma in adults: an effectiveness trial. *J Am Board Fam Med.* 2012;25:442-459.
3. Bell SC, et al. Azithromycin in patients with cystic fibrosis chronically infected with *Pseudomonas aeruginosa*: a randomized controlled trial. *JAMA.* 2010;303:1707-1715.
4. <https://www.ncbi.nlm.nih.gov/books/NBK557766/>
5. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4653965/>
6. <https://www.rxlist.com/azithromycin/generic-drug.htm>
7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3910718/>
8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8900634/>
9. <https://worldwidescience.org/topicpages/a/azithromycin+treatment+reduces.html>
10. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7654467/>
11. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9444032/>
12. <https://jamanetwork.com/journals/jama/fullarticle/2766117>
13. Ocan M, Obuku EA, Bwanga F, et al. Household antimicrobial self-medication: a systematic review and meta-analysis of the burden, risk factors and outcomes in developing countries. *BMC Public Health.* 2015;15:742. Published 2015 Aug 1. doi:10.1186/s12889-015-2109-3
14. Osemene KP, Lamikanra A. A study of the prevalence of self-medication practice among university students in southwestern Nigeria. *Trop J Pharm Res.* 2012;11(4):683-689. doi:10.4314/tjpr.v11i4.17
15. Shehnaz SI, Agarwal AK, Khan N. A systematic review of self-medication practices among adolescents. *J Adolesc Health.* 2014;55(4):467-483. doi:10.1016/j.jadohealth.2014.07.001
16. Femi-Oyewo MN, Adejumo OE, Hassan SA. Self-medication pattern among students of Olabisi Onabanjo University, Ogun State. *Nig J Pharm* 2002;1:17-20.
17. WHO. Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication. Geneva: World Health Organization; 2001.
18. Chaudhary PK, Maurya AK, Jain A, Sharma N, Mishra A. Self-medication practices with antibiotics among health care professional in Uttar Pradesh, India: A questionnaire based study. *Indo Am J Pharm Res* 2015;5:752-9.
19. World Health Organization. Global strategy for Containment of Antimicrobial Resistance. Geneva: World Health Organization, Communicable Disease Surveillance and Response (CSR); 2001.
20. Kumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V, et al. Perceptions and practices of self-medication among medical students in coastal South India. *PLoS One* 2013;8:e72247
21. World Health Organization. Antimicrobial resistance: global report on surveillance. 2014.
22. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. *MMWR Recomm Rep.* 2015;64(RR-03):1-137.