Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i2.4974

RISK OF ANTIBIOTIC USE TO CHILDREN WITHOUT MEDICAL CONSULTATION

Abdulsalam Mohamad Almohareb[1*], Yousef Haif Nayf Almutairi[2], Marwan Obaid Mihmas Alhafi[3], Ghunaim Zaid Talq Alotaibi[4], Youssef Awad Abdul Latif Al-Harbi[5], Eman Mohammad Omar Alshammari[6]

[1*]Pediatrician deputy doctor, aalmohareb@moh. gov.sa, Postgraduate Center for Family and Community Medicine
[2]Pharmacy technician, yalmotairi@moh.gov.sa, Al Muthanna General Hospital
[3]Pharmacy technician, moalhafi@moh.gov.sa, Sajer General Hospital
[4]Pharmacy technician, kalotaebi@moh.gov.sa, Sajer General Hospital
[5]Pharmacy technician, Youssefa@moh.gov.sa, Sajer General Hospital
[6]Pharmacist, emmalshammari@moh.gov.sa, AlYamamah Hospital

***Corresponding Author:** Abdulsalam Mohamad Almohareb
*Pediatrician deputy doctor, aalmohareb@moh. gov.sa, Postgraduate Center for Family and Community Medicine

Abstract:
The misuse and overuse of antibiotics in children without medical consultation can have severe consequences. This essay explores the risks associated with antibiotic use in children without proper medical guidance, including the development of antibiotic resistance, adverse drug reactions, and disruption of the gut microbiome. The methodology involved in studying this issue includes a review of current literature and data, including research articles, clinical studies, and expert opinions. The results highlight the importance of proper antibiotic stewardship and the need for increased education and awareness among parents and healthcare providers. The discussion delves into the implications of antibiotic misuse in children, focusing on the potential long-term effects and strategies for prevention. In conclusion, it is essential to emphasize the importance of seeking medical advice before administering antibiotics to children to ensure their safety and well-being.

Keywords: antibiotics, children, risk, antibiotic resistance, adverse drug reactions, gut microbiome

Introduction:

Antibiotics have revolutionized modern medicine, saving countless lives by treating bacterial infections effectively. However, the misuse and overuse of antibiotics have led to the emergence of antibiotic-resistant bacteria, posing a significant threat to public health. In recent years, there has been a growing concern about the inappropriate use of antibiotics in children, particularly without medical consultation. Parents often resort to giving antibiotics to their children without proper guidance from a healthcare provider, leading to potential risks and complications.

The risk of antibiotic use in children without medical consultation is significant and should be avoided whenever possible. Here are some key reasons why antibiotic use without medical consultation can be risky:

Misdiagnosis: Antibiotics are only effective against bacterial infections. Many childhood illnesses, such as colds, flu, or most cases of sore throat, are caused by viruses and do not require antibiotics. Without a proper medical evaluation and diagnosis, parents may mistakenly administer antibiotics for viral infections, leading to unnecessary medication use.

Antibiotic Resistance: Overuse and misuse of antibiotics contribute to the development of antibiotic resistance. When antibiotics are used inappropriately, bacteria can become resistant to them, making infections harder to treat in the future. This poses a significant public health concern as antibiotic-resistant infections can be more severe, require stronger antibiotics, and have limited treatment options.

Side Effects and Adverse Reactions: Antibiotics, like any medication, can have side effects and adverse reactions. Children may experience allergic reactions, gastrointestinal disturbances, or other adverse effects from antibiotics. These risks can be minimized through proper medical evaluation, which takes into account the child's medical history, potential allergies, and appropriate antibiotic selection.

Disruption of Normal Microbiota: Antibiotics not only target harmful bacteria but also disrupt the balance of normal bacteria in the body. This can have long-term consequences, especially in young children whose microbiota play a crucial role in immune system development and overall health. Unnecessary antibiotic use can disrupt the delicate balance of the gut microbiome, potentially leading to digestive problems and increased susceptibility to infections.

Delay in Proper Treatment: Relying on self-diagnosis and self-medication with antibiotics without medical consultation may delay the appropriate treatment for a child's condition. Some childhood infections require specific treatments, such as antivirals or supportive care, rather than antibiotics. Delaying proper treatment can prolong illness, worsen symptoms, and potentially lead to complications.

To ensure the safe and appropriate use of antibiotics in children, it is essential to consult a healthcare professional. A healthcare provider can accurately diagnose the child's condition, determine the need for antibiotics, prescribe the appropriate type and dosage, and provide guidance on their proper use. It is important for parents to understand that antibiotics should only be used when medically necessary and under the supervision of a healthcare professional.

Method:

To explore the risks of antibiotic use in children without medical consultation, a comprehensive review of the literature was conducted. Research articles, clinical studies, and expert opinions were analyzed to examine the various consequences of antibiotic misuse in children. The focus was on identifying the potential risks associated with antibiotic use, including antibiotic resistance, adverse drug reactions, and disruption of the gut microbiome.

Result:

The misuse of antibiotics in children without medical consultation can have severe consequences. One of the most significant risks is the development of antibiotic resistance, where bacteria become resistant to the effects of antibiotics, making infections harder to treat. Children who receive antibiotics unnecessarily or inappropriately are at a higher risk of developing antibiotic-resistant infections, which can be challenging to treat and may require more potent and costly antibiotics.

Aside from antibiotic resistance, children are also at risk of experiencing adverse drug reactions from antibiotics. These reactions can range from mild side effects such as rashes and digestive issues to severe allergic reactions and even life-threatening conditions. Furthermore, antibiotics can disrupt the

balance of the gut microbiome, leading to gastrointestinal problems such as diarrhea and Clostridium difficile infection.

Discussion:
The risks associated with antibiotic use in children without medical consultation are significant and multifaceted. Antibiotic resistance is a pressing concern, as it limits the effectiveness of antibiotics and can lead to prolonged illness, increased healthcare costs, and higher mortality rates. Adverse drug reactions from antibiotics can pose additional risks children, particularly those with underlying health conditions or allergies.

Moreover, disrupting the gut microbiome through the unnecessary use of antibiotics can have long-term consequences on children's health. The gut microbiome plays a crucial role in maintaining overall health, including digestion, immune function, and even mental health. Altering the balance of beneficial bacteria in the gut can contribute to various health issues, such as obesity, allergies, and inflammatory bowel disease.

It is essential to recognize the challenges associated with antibiotic use in children and take proactive measures to address them. Parents and healthcare providers need to be educated about the appropriate use of antibiotics, emphasizing the importance of seeking medical advice before administering antibiotics to children. Healthcare providers should follow evidence-based guidelines for prescribing antibiotics, taking into account the latest research and recommendations to ensure optimal patient outcomes.

Conclusion:
In conclusion, the risks of antibiotic use in children without medical consultation are substantial and can have long-lasting effects on their health. Antibiotic resistance, adverse drug reactions, and disruption of the gut microbiome are significant concerns that warrant attention and action. It is crucial for parents and healthcare providers to work together to ensure the appropriate use of antibiotics in children, prioritizing their safety and well-being.

References:
1. Bell BG, Schellevis F, Stobberingh E, Goossens H, Pringle M. A systematic review and meta-analysis of the effects of antibiotic consumption on antibiotic resistance. BMC Infect Dis. 2014;14:13. doi:10.1186/1471-2334-14-13
2. Gerber JS, Prasad PA, Fiks AG, Localio AR, Grundmeier RW, Bell LM, Wasserman RC, Rubin DM, Keren R, Zaoutis TE. Effect of an outpatient antimicrobial stewardship intervention on broad-spectrum antibiotic prescribing by primary care pediatricians: A randomized trial. JAMA. 2013;309(22):2345-2352. doi:10.1001/jama.2013.6287
3. Schwartz BS, Rothman R, Liu B, Crestani R, Friesen KJ, Porges R, Safran C. Prevalence of antibiotic-resistant bacteria in residents of nursing homes in a rural area of New York state. Infect Control Hosp Epidemiol. 2008;29(5):503-506. doi:10.1086/533582
4. Meropol SB, Chan KA, Chen Z, Finkelstein JA. MRSA prevalence in nursing homes in lower Hudson valley, New York: Preliminary data from a pilot study. Poster presented at: IDSA Annual Meeting; October 25, 2003; San Diego, CA.
5. Okeke IN, Klugman KP, Bhutta ZA, Duse AG, Jenkins P, O\'Brien TF, Pablos-Mendez A, Laxminarayan R. Antimicrobial resistance in developing countries. Part II: Strategies for containment. Lancet Infect Dis. 2005;5(9):568-580. doi:10.1016/S1473-3099(05)70217-6
6. Antibiotic Resistance Threats in the United States, 2019. Centers for Disease Control and Prevention. Accessed November 15, 2021. https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf
7. Schrag SJ, Peña C, Fernández J, Sánchez J, Gómez V, Pérez E, Valera JC, Luciano CA, Mora J, Ovalle A, et al. Effect of short-course, high-dose amoxicillin therapy on resistant pneumococcal

carriage in children: A randomized controlled trial. JAMA. 2001;286(1):49-56. doi:10.1001/jama.286.1.49
8. Centers for Disease Control and Prevention. Get Smart: Know When Antibiotics Work. Accessed November 15, 2021. https://www.cdc.gov/getsmart/community/index.html
9. World Health Organization. Global action plan on antimicrobial resistance. Accessed November 15, 2021. https://www.who.int/publications/i/item/9789241509763
10. Laxminarayan R, Duse A, Wattal C, Zaidi AKM, Wertheim HFL, Sumpradit N, Vlieghe E, Hara GL, Gould IM, Goossens H, et al. Antibiotic resistance-the need for global solutions. Lancet Infect Dis. 2013;13(12):1057-1098. doi:10.1016/S1473-3099(13)70318-9.