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Chicken Pox and Ethical Considerations: A Narrative Review

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Abstract

Introduction: Chickenpox (varicella) and shingles (herpes zoster) are caused by the varicella-zoster virus (VZV). While chickenpox is typically a childhood disease, shingles occur due to viral reactivation later in life, often causing severe pain and complications. Below are key global statistics on their prevalence, health consequences, and economic costs. While VZV typically presents with mild symptoms, its high morbidity rate raises important ethical questions regarding vaccination, intentional exposure, and quarantine practices. This article examines the ethical considerations surrounding the varicella-zoster virus (VZV), the causative agent of chickenpox and shingles.

Methods: This study is a narrative review to assess VZV's ethical considerations. Although the publication date of relevant articles was not an inclusion criterion, an attempt was made to prioritize more recent articles related to the varicella virus, while excluding older, less relevant articles. We analyze these issues through the lens of the four principles of medical ethics: autonomy, beneficence, non-maleficence, and justice.

Results: While respect for parental autonomy in healthcare decisions is crucial, this article argues that it must be balanced against the medical community's responsibility to prevent harm and promote public health. The ethical implications of intentional exposure to VZV, particularly in the context of existing vaccination, are critically examined. In addition, the challenges of ensuring equitable access to immunization and the affordability of universal vaccination programs within healthcare equity are discussed. Access to herd immunity can also be considered a subset of justice, and this immunity can be achieved through universal vaccination.

Conclusion: The article concludes by emphasizing the essential need for a balanced approach that integrates ethical responsibilities with effective public health initiatives to manage VZV and other preventable diseases.

Keywords: Chickenpox, Shingles, Vaccination, Medical Ethics, Cost-Effectiveness, Public Health Policy, Ethical Consideration.

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Introduction

The varicella-zoster virus, which causes chickenpox and shingles, has a high morbidity despite its low mortality. Management strategies for this virus, including vaccination and quarantine, present various ethical considerations.

Some groups support intentional exposure to the virus, while others favour quarantine. Many advocates for widespread vaccination against the virus, while others oppose it with various justifications.

According to the four principles of medical ethics [1], decisions regarding exposure to the disease or vaccination should respect individual autonomy. However, the principles of beneficence and non-maleficence place a significant moral responsibility on the medical community to ensure the safety and health of individuals against this disease. Recommending or mandating either exposure or vaccination solely based on individual preference is ethically challenging. This article seeks to review these challenges using scientific and ethical reasoning and to provide potential responses.

Ethical debates surrounding the management of VZV often involve weighing individual autonomy and choice against the benefits of vaccination and treatment. Conflicts may arise between the principles of medical ethics and the requirements of public health policy, requiring careful moral reasoning. This article examines

the ethical issues of vaccination and other management strategies, considering arguments based on beneficence, non-maleficence, and justice in healthcare.

Methodology

This article is a narrative review. The inclusion criterion for data selection was relevant to ethical considerations surrounding VZV. Although the publication date of relevant articles was not an inclusion criterion, an attempt was made to prioritize more recent articles related to the varicella virus, while excluding older, less relevant articles. This article presents an ethical perspective, based on the four principles of medical ethics, regarding exposure, quarantine, and vaccination. The search was conducted using the terms "chickenpox," "shingles," "vaccination," "medical ethics," "cost-effectiveness," "public health policy," and "ethical consideration."

Results

Is it ethical to intentionally expose people (especially children) to the virus, or to quarantine infected individuals? Given the low mortality rate of the disease[2], there is disagreement on whether healthy and infected individuals should interact, and whether infected individuals should be quarantined to prevent contact with healthy individuals. Considering the ethical principle of respecting autonomy and the right to choose, which in the case of children is delegated to their parents, intentionally exposing themselves or their children to the disease to strengthen their immune systems against this virus by accepting a low-risk infection could be considered a right. Parents may seek to distance their children from the potential greater harm they might face in adulthood if they contract the disease [3].

In many cases, this is achievable because most children develop a high level of immunity after contracting and enduring the disease, and are not exposed to chickenpox as adults. However, benefits may not be guaranteed for all exposed individuals, and harm may not be preventable in all cases. Because each person's immune system and ability to cope with the disease are unique (except in those with known immunodeficiency), and although the disease appears self-limiting and mild in most cases, it can suddenly become severe and even lead to death. In other words, intentionally exposing healthy and infected individuals can be considered a low-risk factor for causing death or serious illness. Before vaccination, there were 11,000 hospitalizations and 100 deaths per year from the disease in the United States. Given the dignity of human beings and the value of life [4], every human death is a moral imperative to be prevented by the healthcare system. Therefore, intentionally exposing children to this virus does not seem ethical, especially when a near-certain possibility of preventing the disease through vaccination exists. Furthermore, a child can avoid infection entirely.

Is vaccination against this disease ethical, and should it be mandatory? Vaccination against any preventable disease seems prima facie moral [5] because it is a beneficial measure in reducing disease incidence and mortality. One of the most important challenges with any vaccine is ensuring its efficacy and safety; if these are not assured, the use of the vaccine is unethical. Typically, policymakers rely on clinical trials to ensure the efficacy and safety of vaccines before introducing them to the public. However, many individuals, especially parents, oppose vaccination due to concerns about vaccine safety, the maturity of their child's immunity, uncertainty about health system policies, scepticism about the motives of the pharmaceutical industry, misinformation, religious beliefs, and a feeling of pressure or coercion in decision-making[6]. While respecting individual autonomy suggests supporting parental decisions, this presents two challenges: interference of respecting autonomy with the principle of beneficence and addressing concerns about vaccine safety and information. By fully accepting parental autonomy, both their child and other children in the community may be exposed to harm and the risks of the disease. In this case, limiting individual autonomy can be in their own and others' interests, and is considered a moral issue.

The second challenge is that many parents oppose vaccination due to a lack of sufficient information about how vaccination works and vaccine safety. Addressing their concerns and helping them make informed decisions is a moral duty. By patiently considering their views and addressing their concerns, the feeling of compromised autonomy can be minimized.

Some ethical challenges regarding vaccination relate to the principle of justice in healthcare and social policies: Justice in the healthcare system means equal access to healthcare facilities and services for all social classes. Social justice in the healthcare system refers to providing equal healthcare services to all individuals, regardless of their characteristics[7]. If a therapeutic, diagnostic, or preventive service exists, all individuals should be able to benefit from it at the lowest possible cost, with the distribution system based on the needs of each segment of society[8,9]. In other words, all individuals in a society must be assured that the government will protect their health.

The proper and accessible provision and distribution of vaccines to all communities and sectors of society exemplifies justice in the healthcare system.

Policymakers in each society should establish a level of access to vaccination for all members based on their priority needs, ensuring that this access is provided even in the most remote and underserved areas.

A question that may arise for policymakers when providing universal vaccines is the financing of universal vaccination from the health system budget. Allocating budgets and resources to control any disease has always been challenging. How much of the health budget should be allocated to vaccine production and distribution, and is this cost cost-effective given the frequency of the disease, its morbidity, and its mortality? Vaccination programs are often considered reasonable and cost-effective due to their cost-effectiveness in reducing healthcare costs, mortality, and morbidity [10].

However, the exact answer to this question will vary depending on the disease, its mortality rate, and its morbidity. In the case of chickenpox, where the mortality rate is statistically low and the disease is often self-limiting, this issue is controversial. The cost-effectiveness of vaccination varies across societies, depending on the amount and type of budget allocated to different health sectors. Some reports have assessed the vaccination program in the United States [11], Italy [12], China [13], Sudan [14], and Australia [15] as cost-effective, while a report to the contrary has been recorded for Iran [16]. It is also said that in West Asian countries, epidemiological data and the economic burden of chickenpox are scarce [17], and it is not possible to make a correct judgment about the cost-effectiveness of vaccination.

Results

The ethical considerations surrounding the varicella-zoster virus, which includes both chickenpox and shingles, are complex and multifaceted. This article has explored the tensions between individual autonomy and public health responsibilities regarding exposure, vaccination, and quarantine practices. It is clear that while respect for parental autonomy is crucial, it cannot replace the collective duty to ensure the safety and well-being of all, especially vulnerable populations such as children.

The evidence suggests that deliberately exposing individuals to the virus, despite arguments based on natural immunity, is ethically problematic, especially given the availability of safe and effective vaccination. The potential for serious complications, even in a disease that is usually considered mild, underscores the need for preventive measures. Vaccination programs should therefore be prioritized.

Furthermore, the ethical principle of equity in health care requires that we strive for equitable access to vaccination for all members of society. This includes addressing financial constraints, ensuring effective allocation of healthcare budgets to support widespread vaccination, and overcoming challenges in delivering services to remote and underserved areas. It also means addressing the roots of vaccine mistrust and scepticism through transparent, accessible, and culturally sensitive information.

Given the limited resources, policymaking in each country and region must be based on the prevalence statistics of the disease, its morbidity and mortality levels, and the availability of diagnostic and treatment resources.

Despite the value of human life and the need to preserve the life of each human being, which is relevant for every disease, policymakers must make decisions about providing vaccines for the entire society, taking into account the most up-to-date and accurate information from different sectors of society, the extent of physical and psychological harm each disease causes to individuals and society, and the mortality rate from the disease.

Consequently, addressing the ethical dilemmas associated with the management of varicella-zoster virus requires a balanced, informed, and inclusive approach. This requires policymakers, medical professionals, and the public to engage in an ongoing dialogue to ensure that both individual rights and collective well-being are protected through evidence-based public health strategies. This requires a commitment to universal vaccination, while respecting legitimate concerns and promoting health literacy, to uphold ethical responsibilities and protect against preventable diseases.

Highlights

What Is Already Known?

There are ethical challenges to vaccination to prevent viruses and exposure to them to cause low-risk diseases. Some experts favor vigorous vaccination and others favor non-vaccination and exposure, and ethical consideration in this area can answer some questions.

What Does This Study Add?

Addressing the ethical dilemmas associated with the management of varicella-zoster virus requires a balanced, informed, and inclusive approach. This requires policymakers, medical professionals, and the public to engage in an ongoing dialogue to ensure that both individual rights and collective well-being are protected through evidence-based public health strategies. This requires a commitment to universal vaccination, while respecting legitimate concerns and promoting health literacy, to uphold ethical responsibilities and protect against preventable diseases.

Authors' Contributions

The first author prepared the initial draft of the article, and the second author approved and edited the draft.

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