VACCINATION FOLLOW UP FOR CHILDREN WITH CHRONIC DISEASE, NURSING REVIEW

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Abstract:
Children who have chronic medical issues may have a higher likelihood of experiencing serious consequences associated with illnesses that can be prevented by vaccines. Hence, it is advisable to administer extra booster doses or supplemental vaccinations to healthy youngsters, in addition to the regular immunization regimen. This paper aimed to examine the attitudes, knowledge, and behaviors of physicians and parents on extra vaccines for children with chronic diseases. The vaccination coverage for compulsory vaccines was similar to that of the whole population. Nevertheless, there was a limited rate of immunization for certain vaccinations. Hence, the implementation of strategies to prioritize pediatric vaccinations and enhance healthcare professionals' understanding of the significance of medical recommendations regarding specific vaccines for children with chronic illnesses might effectively enhance vaccination rates.

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Introduction:

Immunization is a highly significant and efficient approach in public health. Annually, immunizations are projected to avert up to three million fatalities globally. Moreover, vaccinations have advantages that extend beyond preventing fatalities and are also measured in terms of the reduction in disability-adjusted life years (DALYs) or the increase in quality-adjusted life years (QALYs). Hence, vaccination further yields substantial cost savings by preventing the healthcare expenses linked to disease treatment [1].

Even in affluent nations, vaccine coverage is often high, but certain demographic groups have lower-than-ideal immunization rates [2]. These individuals encompass children and adolescents who have chronic medical illnesses that might potentially make them more susceptible to serious consequences resulting from infections that can be prevented by vaccines. This higher risk is attributable to their underlying chronic medical conditions and the treatments they receive. These individuals may also have a higher risk of contracting infections since they have regular access to healthcare facilities for both outpatient and inpatient treatments [3]. Nevertheless, there is limited information regarding the extent to which this particular group of patients has received and embraced vaccination, as statistics on vaccination rates and reluctance are only available for the whole pediatric population [3].

Vaccination regimens are tailored based on the specific medical conditions and levels of immunosuppression to optimize the effectiveness of immunization. Additional vaccination doses, more frequent booster doses, and additional vaccines may be necessary, in addition to the regular regimen used for healthy children [3].

Several high-income nations have national vaccination schedules that specifically address immunization tactics for unique groups, such as those with chronic conditions. Nevertheless, the wide range of potential illnesses and the diversity of individuals provide significant obstacles to the creation of recommendations, rendering the process complex and demanding. The immunization schedules of various nations vary not just in terms of the medical disorders recognized as risk groups, but also in terms of the vaccines recommended for each condition. Moreover, the scientific substantiation for these suggestions is frequently constrained [3].

Review:

Children afflicted with chronic illnesses are more vulnerable to infections and the subsequent difficulties that may arise. Hence, it is advisable to deliver vaccines to children with chronic conditions, unless there are explicit contraindications [4].

There are differences in vaccination policies and recommendations among nations, as well as variations in vaccine coverage rates. The reported vaccination coverage rates for newborn primary diphtheria-tetanus-pertussis (DTP)-containing immunizations range from 89.1% to 98.2%, and for measles, the range is between 86% and 99% across European countries [5]. In Turkey, since the implementation of the national vaccination program in 1985, there has been a significant increase in vaccination rates throughout the years. The coverage rates for the third dose of vaccines for DTaP and hepatitis B (HBV) are 99%, and for measles-mumps-rubella (MMR) it is 97% [6]. The National Immunization Schedule includes the administration of various vaccines at specific ages. These include the diphtheria–tetanus–acellular pertussis (DTaP) vaccine combined with inactive polio (IPV) and Haemophilus influenzae (Hib) as DTaP–IPV–Hib. The primary doses are given at 2, 4, and 6 months of age, with booster doses at 18 months, 48 months (DTaP–IPV), and 13 years (Td). The MMR vaccine is administered at 1 year and 48 months of age. The conjugated pneumococcal vaccine (PCV) is given at 2 and 4 months, with a booster dose at 1 year of age. Since 2008, the HBV vaccine has been administered at birth, 1 month, and 6 months. The Bacillus Calmette-Guerin (BCG) vaccine is given at 2 months of age. The varicella vaccine is administered at 1 year of age since 2012. The Hepatitis A vaccine (HAV) is given at 18 and 24 months of age since 2011. Modifications have been made to the national vaccination schedule. The administration of the second DTaP booster dose and the first MMR booster dose used to occur at the age of 6. However, as of July 2020, the age at which these booster doses are taken was adjusted to 48 months, and the Td dosage, formerly given in the eighth grade, is now administered at 13 years of age. While national vaccination rates are reportedly high for healthy newborns and children, there is a paucity of evidence about the specific vaccination rates for infants with chronic illnesses in Turkey and other countries globally [7]. Nevertheless, it has been documented that the immunization rates among these youngsters are lower compared to the overall population [8].

There is a limited amount of data available on the extent to which children with chronic conditions are being immunized. This topic has only been explored in a small number of research. The study conducted by Klein et al. [9] was a comparison between newborns with inborn errors of metabolism and a group of healthy controls. The study indicated that both groups had equal rates of immunization. The study conducted by Esposito et al. [10] revealed that the immunization rates for all the recommended vaccinations in children with genetic disorders were notably lower compared to those reported in healthy controls. Tillman et al [11] examined the immunization records of a cohort of children with persistent neurological impairments and discovered that the overall count of given vaccines for DTP, polio and Hib, MMR, and hepatitis B were notably fewer in patients as compared to healthy individuals. Masson et al [12] examined the rates of vaccination coverage in a cohort of 134 patients with cystic fibrosis (CF) and discovered inadequate coverage rates for compulsory immunizations at 1 year of age.

Patients with neurological and neurodevelopmental abnormalities, particularly children, are typically seen as part of the population that requires care and is vulnerable to contracting infectious infections [12]. Children diagnosed with chronic neurological disorder (CND) face a similar risk as the general population when it comes to vaccine-preventable diseases. However, they are at a higher risk for specific diseases. More precisely, those with compromised immune systems are more susceptible to experiencing problems from infectious diseases. Additionally, they exhibit greater rates of both mortality and morbidity when it comes to influenza and pneumococcal infections, in comparison to individuals who are in good health. Just like in healthy children, regular vaccination is a crucial preventive step for infectious diseases in children with CND. CNDs, as determined by health authorities such as the Advisory Committee on Immunization Practices (ACIP), are considered high-risk conditions for influenza and pneumococcal infections. Therefore, it is recommended to receive immunizations to protect against these illnesses. Patients with chronic neurological disorders (CNDs) had significant problems during the current H1N1 influenza pandemic, despite the relatively low death rate [13]. While other vaccine-preventable diseases may not be classified as high risk in terms of immunizations, they can still pose complications in children with CNDs (Chronic Neurological Disorders). For example, diseases like varicella and pertussis infection can lead to neurological complications and necessitate hospitalization in this population [14]. The hospitalization of young children, regardless of the cause, has certain hazards such as prolonged hospital stays, potential medication interactions, and the requirement for stays in the critical care unit.

Another significant concern about immunization in children with CNDs is the postponement of vaccination owing to relative or temporary contraindications. Instances where non-vaccination is absolutely contraindicated are uncommon, such as severe anaphylaxis caused by vaccine components or the presence of immune deficiency for live vaccines. However, apart from these situations, there are cases of vaccine refusals, although they are not yet widespread in Turkey, due to reasons unrelated to vaccines.The number is 7. Over the past few years, vaccination has been falsely associated with numerous unfounded claims and misinformation, leading to a decline in the number of people being vaccinated. These many concerns associated to vaccination offer a potential danger to both children with chronic neurological disorders (CNDs) and the overall protection provided by herd immunity for other children and adults [12].

Data on vaccination rates among children in the whole European population are obtained from mandatory health check-ups and school surveys, revealing a significant proportion of children under the age of 2 receiving vaccinations. Estimating rates for children with chronic conditions is challenging due to the absence of dedicated monitoring systems. During the period of this research, the sole obligatory vaccinations for all newborns in France consisted of a combined dosage of diphtheria, tetanus, and poliomyelitis, known as DT-IPV. Similar to all vaccinations in France, this combination injection is provided by primary care physicians. Additional immunizations were advised for all youngsters, while particular vaccines were indicated for those with underlying diseases. Children who have chronic diseases are particularly vulnerable to infections that can be prevented by vaccines. They also have a higher likelihood of experiencing severe infections and worsening of their existing condition. A research conducted in English revealed that children between the ages of 2 and 15 who were immunocompromised were 41 times more susceptible to invasive pneumococcal disease (IPD) compared to the control group. The study also provided a 95% confidence interval (95% CI) of 35-48. The occurrence of the condition was significantly higher in HIV-infected individuals,

with a likelihood that was 100 times more (95% CI 44-227). Similarly, children with chronic liver illness had a likelihood that was 30 times greater (95% CI 15.3-57.2). In children with neurological disorders, influenza was linked to an increased likelihood of hospitalization due to severe consequences. Additionally, children with cystic fibrosis had a higher risk of respiratory exacerbations, while patients with diabetes were at a high risk of decompensation [15,16].

Children who have chronic conditions are considered to be groups who are at a higher risk. The French vaccination schedule includes special recommendations for national vaccines for children with various chronic disorders. The calendar is consistently revised and released year. Children with chronic conditions have decreased vaccination coverage rates compared to the general population, however the exact percentages are unknown. Moreover, research frequently associates the postponement or refusal of vaccinations with physicians' inadequate understanding or inability to communicate to families about the specific reasons for administering these vaccines. immunization delay refers to a significant discrepancy between the actual age of immunization and the recommended age, and it can have severe effects [16].

Conclusion:

Postponed immunizations, especially before to 24 months of age, constitute a significant hazard for children with chronic ailments and subject them to potentially grave illnesses. In order to enhance the vaccination coverage rate of at-risk populations, it is imperative to prioritize the dissemination of information to both family members and healthcare professionals responsible for the care of these children. Special attention should be given to ensuring that the hospital medical team and accompanying physicians have sufficient knowledge on the reasons for administering certain vaccines to these children. Hence, it is important for nurses and family pediatricians to allocate extra time to provide guidance and engage in discussions on vaccines with parents of children afflicted by chronic illnesses, addressing their inquiries and potential apprehensions.

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