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Research Article

THE EFFECTIVE WAYS OF USING VACCINETION AND PREVENTION OF INFECTIOUS DIESEAS IN THE COMMUNITY

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ABSTRACT

This study is on the effective ways of protecting infectious dieseas in the public, through use of vaccinetion . Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of vaccine. These vaccines help to stimulate the body's own immune system to protect the person against subsequent infection or disease. Every year more than 10 million children in low- and middle-income countries die before they reach their fifth birthdays. Most die because they do not have access effective interventions that would combat common and preventable childhood illnesses.In 2015, there were 134 200 measles deaths globally – about 367 deaths every day or 15 deaths every hour, to determine the social- demographic characteristic of the participant/ respondent, to identify reason why parents do refused to bring their children for immunization, We should therefore work harmoniously to ensure that every child is adequately immunized.

KEYWORDS

Ways, effective, diesease, infectious, prevent, vaccinetion, community.

INTRODUCTION

Nigeria is a signatory to the declaration on the survival, protection and development of children, which was articulated at the 49th World Health Assembly in 1986, This was further reinforced by e world summit for

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children held in New York in 1988. This declaration established challenges for global immunization, The Federal Government of Nigeria through the Federal Ministry of Health has pursued an active immunization Programme, and has given necessary priority to its immunization Programme, The expanded Programme on immunization (EPI) was initiated In 1979. However, in view of the critical need to enhance the effectiveness of Immunization, which was fast declining, and to meet the global challenges of immunization, the EPI was restructured in 1997. It was renamed National Programme on Immunization (NPI) and established as a Parasternal of the Federal Ministry of Health by decree 12 of 1997 (National Immunization Policy, Revised 2009).

Concept Of Immunization

The concept of immunization, or how to artificially induce the body to resist infection, received a big boost in 1796, when physician Edward Jenner inoculated a young boy in England and successfully prevented him from getting smallpox. Jenner used a lancet to scratch some infected material from a woman with cowpox (similar to smallpox) under the boy's skin. These smallpox inoculation devices illustrate both the simplicity of the idea and the complexity of the task. Left to right, from upper left corner: three examples of scab protectors (used after inoculation; early 20th century) two types of current disposable devices; bifurcated needles (a significant invention in 1968 because they used less vaccine and could be sterilized and reused); ivory vaccination points in glass carrier with wood shell (1900); vaccinator with metal carrying tube (19th century); spring lancet (1930s) glass and ivory points; round cowpox scab carrier (1860s, to transport vaccinating material); folding vaccinator (early 19th century); trigger vaccinator (1866); ivory-handled lancets with box (18th century); and drum vaccinator (19th century). The photograph shows a man with the distinctive smallpox blisters that often left permanent scars (Talman, 2011).

Immunization, also called vaccination or inoculation, a method of stimulating resistance in the human body to specific diseases using microorganisms-bacteria or viruses-that have been modified or killed. These treated microorganisms do not cause the disease, but rather trigger the body's immune system to build a defense mechanism that continuously guards against the disease. If a person immunized against a particular disease later Comes into contact with the disease-causing agent, the immune system is immediately able to respond defensively. Immunization has dramatically reduced the incidence of a number of deadly diseases. For example, a worldwide vaccination program resulted in the global eradication of smallpox in 1980, and in most developed countries immunization has essentially eliminated diphtheria, poliomyelitis, and neonatal tetanus (Blackman, 2009) The word vaccine originates from the Latin Variolae vaccinae (cowpox), which Edward Jenner demonstrated in 1798 could prevent smallpox in humans.

Types of Immunity

Scientists have developed two approaches to immunization: active immunization, Which provides 1ong-lasting immunity, and passive immunization, which gives temporary immunity. In active immunization, all or part of a disease-causing microorganism or a modified product of that microorganism is injected into the body to make the immune system respond defensively. Passive immunity is accomplished by injecting blood from an actively immunized human being or animal (Blackman, 2009).

Natural Immunity

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Immunity that is naturally present and is not due to prior sensitization to an antigen from, for example, an infection or vaccination. Since it is not stimulated by specific antigens, innate immunity is generally nonspecific. It is in contrast to acquired immunity. Also called innate immunity (MedicineNet, 2014).

Active Immunity

This can occur naturally when a person comes in contact with, for example, a microbe. The immune system Will eventually create antibodies and other defenses against the microbe. The next time, the immune response against this microbe can be very efficient; this is the case in many of the childhood infections that a person only contracts once, but then is immune.

Artificial Active Immunity is where the microbe, or parts of it, are injected into the person before they are able to take it in naturally. If whole microbes are used, they are pre-treated (Wikipedia, 2014).

Passive Immunization

Is where pre-synthesized elements of the immune system are transferred to a person so that the body does not need to produce these elements itself currently, antibodies can be used for passive immunization. This method of immunization begins to work very quickly, but it is short lasting, because the antibodies are naturally broken down, and if there are no B cells to produce more antibodies, they will disappear.

Artificial Passive Immunity is normally administered by injection and is used if there has been a recent outbreak of a particular disease or as an emergency treatment for toxicity, as in for tetanus. The antibodies can be produced in animals, called "serum therapy," although there is a high chance of anaphylactic shock because of immunity against animal serum itself. Thus, humanized antibodies produced in vitro by cell culture are used instead if available (Wikipedia, 2014).

History of Immunization

The use of immunization to prevent disease predated the knowledge of both infection and immunology. In China in approximately 600 BC, smallpox material was inoculated through the nostrils. Inoculation of healthy people with a tiny amount of material from smallpox sores was first attempted in England in 1718 and later in America. Those who survived the inoculation became immune to smallpox. American statesman Thomas Jefferson travelled from his home in Virginia to Philadelphia, Pennsylvania, to undergo this risky procedure. A significant breakthrough came in 1796 when British physician Edward Jenner discovered that he could immunize patients against Smallpox by inoculating them with material from cowpox sores (Blackman, 2009).

Since Pasteur's time, a widespread and intensive search for new vaccines has been conducted, and vaccines against both bacteria and viruses are produced, as well as vaccines against venoms and other toxins. Through vaccination, smallpox has been eradicated worldwide, and polio much reduced. Vaccines have also been developed for mumps, typhoid, cholera, plague, tuberculosis, tularemia, measles, pneumococcal infection, tetanus, influenza, yellow fever, hepatitis A and B, Some types of encephalitis, and typhus-although some of these vaccines are less than 100 percent effective or are Used only in selected population groups at high risk. Interest in bacterial vaccines slackened with the introduction of antibiotics in the mid-20th century, but vaccines remain a mainstay in the fight against many infectious diseases, especially viral infections, which do not

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generally respond to antibiotics (Encyclopaedia Britannica, 2008).

Type's of Vaccines

Scientists take many approaches to designing vaccines against a microbe. These choices are typically based on fundamental information about the microbe, such as how it infects cells and how the immune system responds to It, as well as practical considerations, such as regions of the world where the vaccine would be used (Marcuse, 2002).

There are two basic types of vaccines: live attenuated and inactivated. The characteristics of live and inactivated vaccines are different, and these characteristics determine how the vaccine is used (Hackett, 2011).

Example of Vaccines

Inactivated vaccines

Toxoid

Live Attenuated Vaccines

Recombinant DNA Vaccines

Polynucleotide Vaccination

Inactivated Vaccines

These vaccines are produced by growing the bacteria or Virus in culture media, then inactivating it with heat and/or chemicals (usually formalin). In the case of fractional vaccines, the organism is further treated to purify only those components to be included in the vaccine (e.g., the polysaccharide capsule of pneumococcus). Inactivated vaccines are not alive and cannot replicate. The entire dose of antigen is administered in the injection. These vaccines cannot cause disease from infection, even in an immunodeficient person (Quarles & Michael 2002).

Toxoid

Toxoid vaccines are made from inactivated toxic compounds that Cause illness rather than the micro-organism. Examples of toxoid-based vaccines Include tetanus and diphtheria. Toxoid vaccines are known for their efficacy. Not all toxoids are for micro-organisms, for example, Crotalus atrox toxoid is used to vaccinate dogs against rattlesnake bites (Sinha & Bhattacharya, 2014).

Live Attenuated Vaccines

Live, attenuated vaccines contain a version of the living microbe that has been weakened in the laboratory so it can't cause disease. Because a live, attenuated vaccine is the closest thing to a natural infection, these vaccines are good "teachers" of the immune system They elicit strong cellular and antibody responses and often confer lifelong immunity with only one or two doses. However, Live vaccines live trivalent oral poliovirus vaccine (OPV) is used for routine mass immunization but is not recommended for patients with altered states of immunity (for example, those with cancer or an immune deficiency disease or those receiving immunosuppressive therapy) or for children whose siblings are known to have an immune deficiency disease (Babiuk, 2009).

Components of Vaccines

These include the following substances:

Active components

Adjuvants

Diluents

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Stabilizers

Preservatives

Trace components

Active Components

The active component of a vaccine is known as the vaccine antigen'. This is a modified or partial form of the virus, bacteria or the toxin that causes the disease against which the vaccine protects.

Adjuvants

Adjuvants are used to enhance the immune response to a vaccine. They include various aluminium salts such as aluminium hydroxide, aluminium phosphate and potassium aluminium sulphate (alum).

Diluents

A diluent is a liquid provided separately and used to dilute a vaccine to the proper concentration prior to administration. This is usually sterile saline or sterile water.

Stabilizers

Additives are used as stabilizers and help maintain a vaccine's effectiveness by keeping the antigen and other vaccine components stable during storage. Stabilizers prevent the vaccine components adhering to the side of the vaccine vial.

Preservatives

Preservatives are used to prevent fungal and/or bacterial contamination of vaccines, and are present in some but not all vaccines. Originally, preservatives were introduced to prevent bacterial contamination of multi-dose vials. However, multi-dose vials are no longer used routinely in Australia. The preservatives used include thiomersal, phenozyethanol and phenol.

Trace Components

Trace components are the remaining minute quantities of substances that have been used in the early stages of the production process of individual vaccines. Depending on Vacclne components (NCIRS Fact sheet, 2013).

CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

Irrespective of religion, age and tribe, economic class and social status, illiteracy of parents had influence on non acceptance of immunization.

The fear of side effects and controversies surrounding vaccines are still eminent across all demographic variables.

The problem of conspiracy theories emanating from religious quarters on vaccine contamination with anti-fertility hormones is still perceptible.

There is still remnant of ignorance about immunization in some unit of the community that is posing threat against the control of preventable diseases.

Insecurity was identified as a current logistic factor in reaching out to children in volatile areas.

Significant percentage of respondents do not appreciates the effort of state and local authorities on immunization programs.

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