Neonatal and Pediatric Medicine
ISSN: 2572-4983

Jose, Neonat Pediatr Med 2022, 8:7

Expert Review Open Access

Immunisation Protects Against Infectious Disease: A Review

Ruby Jose*

Department of Obstetrics and Gynecology, Mumbai Medical College, Mumbai, India

Abstract

The purpose of immunisation is to prevent people from getting sick. It helps to protect people against the complications of becoming ill, including developing chronic diseases, cancer, and death. Vaccines work by stimulating the body's defence mechanisms to provide protection against infection and illness. These defence mechanisms are collectively referred to as the immune system. Vaccines mimic and sometimes improve the protective response normally mounted by the immune system after infection. The great advantage of immunisation over natural infections is that immunisation has a much lower risk of harmful outcomes.

Keywords: Immuno; Infection; Vaccine; Body

Introduction

The immune system is the body's defence mechanism, protecting against invaders like bacteria and viruses to keep us healthy.Cells are the main building blocks of our body. Our immune system relies on many different types of cells, each playing an important role [1-3]. Many of these can be found in our bloodstream, especially white blood cells, which are the main component of the human immune system.White blood cells are strategically located throughout the body, not only in the bloodstream but in the lymph nodes, spleen, lungs, intestines and skin. This allows them to deal with pathogens wherever they enter the body.There are two main types of white blood cells: guardian cells responsible for innate immunity (your body's first defence against pathogens) lymphocytes responsible for specific or 'adaptive' immunity (your body's ability to remember pathogens and react quickly if re-infected) [4-5].Other blood cell types include red blood cells, which carry oxygen to our tissues, and platelets, which help our blood to clot.

Innate immunity

The skin and the lining of the lungs and intestine are the first line of defence against infection, forming a physical barrier for protection [6]. These tissues and the sentinal cells that live there form the innate immune system There are two types of lymphocytes: T cells and B cells. T cells respond to infections by releasing chemicals called cytokines, which trigger protective inflammation. T cells can also kill cells that have a pathogen, such as a virus, hidden inside them B cells, often with help from T cells, are involved in making antibodies. Antibodies are complex proteins that attach in a 'lock-and-key' fashion either to pathogens or to the toxins released by them.

Vaccination is disease-specific

Immune responses are very specific, and that is the reason we need to have a specific vaccine for each The immune system responds separately to each pathogen it encounters [7,8]. It cannot be 'overloaded' by giving the full range of currently available vaccines or by having multiple antigens in one vaccine.A healthy immune system can generate hundreds of millions of T and B cells, each of which targets one particular antigen. However, pathogens can sometimes overwhelm the immune response. Vaccines give the immune system a head start by allowing it to learn and remember what a pathogen looks like, providing valuable protection against aggressive pathogens.

Pre-formed antibodies provide immediate protection

It takes around 7–21 days after being vaccinated to generate an effective immune response in healthy individuals.Most vaccines work by switching on a person's immune system to make the antibodies, cytokines and memory cells needed to protect against infection. However, this kind of active immune response takes 7–21 days to fully develop. Sometimes, in the case of overwhelming and dangerous infections, an unwell person may receive pre-formed antibodies as part of their medical treatment to prevent or combat the infection. These either come from healthy blood donors or are produced in a laboratory, as they can act much more quickly to help the person fight off the infection [9-10] This is known as 'passive immunisation'. However, these antibodies don't stay in the body for very long—it is better to make antibodies through being vaccinated wherever possible. (Figure 1)

References

1. Hauptmann LK, Ashkanian M (2017) Post-concussion syndrome is a neuro-cognitive condition. Ugeskr Laeger 179.

***Corresponding author:** Ruby Jose, Department of Obstetrics and Gynecology, Mumbai Medical College, Mumbai, India, E-mail: roserb@gmail.com

Received: 02-Jul-2022, Manuscript No. nnp-22-69978; **Editor assigned:** 04-Jul-2022, PreQC No nnp-22-69978 (PQ); **Reviewed:** 18-Jul-2022, QC No nnp-22-69978; **Revised:** 22-Jul-2022, Manuscript No. nnp-22-69978 (R); **Published:** 29-Jul-2022, DOI: 10.4172/2572-4983.1000250

Citation: Jose R (2022) Immunisation Protects Against Infectious Disease: A Review. Neonat Pediatr Med 8: 250.

2. Al Sayegh A, Sandford D, Carson AJ (2010) Psychological approaches to treatment of post concussion syndrome: a systematic review. J Neurol Neurosur Ps 81: 1128-1134.

3. Potter S, Brown RG (2012) Cognitive behavioral therapy and persistent post-concessional symptoms: integrating conceptual issues and practical aspects in treatment Neuropsychol Rehabil 22: 1-25.

4. Twamley EW, Jak AJ, Delis DC, Bondi MW, Lohr JB (2014) Cognitive Symptom Management and Rehabilitation Therapy (CogSMART) for veterans with traumatic brain injury: pilot randomized controlled trial. J Rehabil Res Dev 51: 59-70.

5. Silverberg ND, Hallam BJ, Rose A, Underwood H, Whitfield K, et al. (2013) Cognitive-behavioral prevention of postconcussion syndrome in at-risk patients: a pilot randomized controlled trial. J Head Trauma Rehabil 28: 313-322.

6. Snowden LR (2003) Bias in mental health assessment and intervention: Theory and evidence.Am J Public Health 93: 239-243.

7. Potter SD, Brown RG, Fleminger S (2016) Randomised, and waiting list controlled trial of cognitive-behavioural therapy for persistent postconcussional symptoms after predominantly mild-moderate traumatic brain injury. J Neurol Neurosurg Psychic 87: 1075-1083.

8. Malone HE, Nicholl H, Coyne I (2016) Fundamentals of estimating sample size. Nurse Res 23: 21-25.

9. Noordzij M, Tripepi G, Dekker FW, Zoccali C, Tanck MW, et al. (2010) Sample size calculations: basic principles and common pitfalls. Nephrol Dial Transplant 25: 1388-1393.

10. Zimmerman M, Morgan TA, Stanton K (2018) The severity of psychiatric disorders World J. Psychiatry 17: 258-275.