

שם: ויקטוריה פאר

שם העבודה:

Sex Differences in Infectious Diseases and the Immune Response to Vaccines

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Abstract

Background:

It is known that there is a male predominance in the incidence of symptomatic disease has been reported for some infectious agents. The exposure of male and female to infectious agents supposed to be similar with consistently higher incidence of diseases among males. The mechanism underlying these differences is not completely clear. In addition, there is evidence that for some vaccines females develop higher antibody titer, higher immune response following vaccination and more adverse reactions than males. The role of sex hormones and physiological function of estrogen and of the mechanisms involved in sex disparity in immune responses is still under investigation. A deep understanding of estrogen role will help to understand and to identify the ways to reduce adverse reactions in females and to improve the immune responses in males.

The main goals of the study is to investigate the sex differences in the incidence of infectious diseases in years 1965-2015 and to try understanding the effect of estrogen on the immune response to vaccination.

Methods:

- Data collection, statistical processing of information regarding infectious disease occurrence in Israel and in other countries, in years 1965-2015.
- Laboratory experiments with animal model to investigate estrogen impact on vaccination efficacy.
- Clinical study (combined with laboratory study) to investigate the effect of estrogen on pertussis vaccination efficacy.

There are accumulating data about different vaccination efficacy in males and females, both in terms of the quality and quantity of the immune response. A deep understanding of estrogen role will help us to find the ways to reduce adverse reactions in females and to improve the immune responses in males.