Airway Mucosal Immune-suppression in Neonates of Mothers Receiving A(H1N1)pnd09 Vaccination During Pregnancy - DTU Orbit (16/12/2018)

Airway Mucosal Immune-suppression in Neonates of Mothers Receiving A(H1N1)pnd09 Vaccination During Pregnancy

Background: It is recommended to vaccinate pregnant women against influenza. A possible impact on the immune expression of the fetus has never been studied. We aim to study the immune signature in the upper airways and the incidence of infections in neonates born to mothers receiving Influenza A(H1N1) pnd09 vaccination during pregnancy.

Methods: One hundred and fifty-six women from the unselected Copenhagen Prospective Study on Asthma in Childhood (COPSAC 2010) received Influenza A(H1N1) pnd09-vaccination during the 2009 pandemic. Fifty-one mothers received the vaccine during pregnancy and 105 after pregnancy; 332 neonates of nonvaccinated mothers were included as secondary controls. Nasal mucosal lining fluid was sampled in 488 neonates and assessed for interleukin (IL)-12p70, IP-10, interferon-gamma (IFN)-gamma, tumor necrosis factor-alpha (TNF)-alpha, MIP-1 beta, MCP-1, MCP-4, IL-4, IL-5, IL-13, eotaxin-1, eotaxin-3, TARC, MDC, IL-17, IL-1 beta, IL-8, transforming growth factor beta (TGF)-beta 1, IL-10 and IL-2. Infections were monitored the first year of life by daily diary cards and clinical controls. Results: Neonates of mothers vaccinated during pregnancy had significant up-regulation of TGF-beta 1 [ratio = 1.52 (1.22-1.90), P = 0.0002], and corresponding down-regulation (P <0.05) of IL-12p70, IFN-gamma, IL-5, eotaxin-1, TARC, MDC, IL-8 in comparison to those vaccinated after pregnancy. The lag-time from vaccination during pregnancy to assessment of the immune signature showed significant and positive association to up-regulation of TGF-beta 1 levels (P = 0.0003) and significant negative association to other mediators. The study was not powered to study differences in the incidence of infections in early infancy which did not differ between the study groups. Conclusion: Influenza A(H1N1) pnd09 vaccination during pregnancy up-regulates TGF-beta 1 and down-regulates key mediators of the protective immunity.

General Information
State: Published
Organisations: Department of Systems Biology, Center for Biological Sequence Analysis, University of Copenhagen
Number of pages: 7
Pages: 84-90
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Pediatric Infectious Disease Journal
Volume: 34
Issue number: 1
ISSN (Print): 0891-3668
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.01 SJR 1.392 SNIP 1.005
Web of Science (2017): Impact factor 2.305
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.09 SJR 1.557 SNIP 1.054
Web of Science (2016): Impact factor 2.486
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.1 SJR 1.478 SNIP 1.063
Web of Science (2015): Impact factor 2.587
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.48 SJR 1.848 SNIP 1.171
Web of Science (2014): Impact factor 2.723
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 2.81 SJR 1.654 SNIP 1.231
Web of Science (2013): Impact factor 3.135
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.23 SJR 1.847 SNIP 1.355