

Picornavirus-Induced Airway Mucosa Immune Profile in Asymptomatic Neonates - DTU Orbit (09/11/2017)

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Bacterial airway colonization is known to alter the airway mucosa immune response in neonates whereas the impact of viruses is unknown. The objective was therefore to examine the effect of respiratory viruses on the immune signature in the airways of asymptomatic neonates. Nasal aspirates from 571 asymptomatic 1-month-old neonates from the Copenhagen Prospective Studies on Asthma in Childhood 2010 birth cohort were investigated for respiratory viruses. Simultaneously, unstimulated airway mucosal lining fluid was obtained and quantified for levels of 20 immune mediators related to type 1, type 2, type 17, and regulatory immune paths. The association between immune mediator levels and viruses was tested by conventional statistics and partial least square discriminant analysis. Picornaviruses were detected in 58 neonates (10.2%) and other viruses in 10 (1.8%). A general up-regulation of immune mediators was found in the neonates with picornavirus ($P < .0001$; partial least square discriminant analysis). The association was pronounced for type 1- and type 2-related markers and was unaffected by comprehensive confounder adjustment. Detection of picornavirus and bacteria was associated with an additive general up-regulating effect. Asymptomatic presence of picornavirus in the neonatal airway is a potent activator of the topical immune response. This is relevant to understanding the immune potentiating effect of early life exposure to viruses.

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Authors: Wolsk, H. M. (Ekstern), Følsgaard, N. V. (Ekstern), Birch, S. (Ekstern), Pedersen, S. B. (Intern), Hansel, T. T. (Ekstern), Johnston, S. L. (Ekstern), Kedadze, T. (Ekstern), Chawes, B. L. (Ekstern), Bønnelykke, K. (Ekstern), Bisgaard, H. F. (Ekstern)

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