

MEETING ABSTRACT

Open Access

Issues of vaccination in premature infants: an overview

Paolo Manzoni^{1*}, Roberta Calzedda¹, Elena Altieri¹, Miguel Angel Pantoja Herrera², Maria Fioretti¹, Daniele Farina¹

From XXI Congress of the Italian Society of Neonatology
Palermo, Italy. 24-26 September 2015

Premature infants (PI) are neonates born <37 weeks gestational age, with different PI subgroups being identified according to gestational age and birth weight.

Prematurity is associated with increased morbidity and perinatal mortality, since yields increased risk for a number of pathological features and negative outcomes related mainly to the extent of all organs and functions' immaturity. Among these conditions, neonatal and post-natal infections play a major role. PI feature increased odds of infections and infections-related morbidity throughout their first months of life.

Among all preventative, anti-infective strategies, active vaccination is a key point for PI.

The most common vaccine-preventable diseases in PI are whooping cough, Haemophilus influenzae type-b (Hib) meningitis, invasive pneumococcal disease, rotavirus gastroenteritis, influenza.

International guidelines recommend to deliver active immunization following the chronological timing (=counting the weeks of actual birth), and not following the corrected gestational age (=counting the weeks of life starting from the expected moment of birth). However, vaccinations in PI are often performed later than recommended, or even less than expected, as shown by recent studies carried out in Italy assessing significantly decreased rates of active immunization in PI.

This somewhat poor adherence to the international guidelines is related to concerns about weaker immune responses in PI, and possible adverse events.

Nonetheless, several studies have shown that vaccines administered to PIs have excellent safety profiles, fully comparable to term infants.

Transient, benign episodes of apnea, with or without associated bradycardia, have been occasionally described in PI occurring up to 48 hours post-immunization. Though no significant morbidity nor long-term sequelae has been associated with these events, it is advisable to monitor these episodes for 48 hours after the completion of vaccination.

Vaccines are immunogenic, generally safe and well tolerated in all infants including PI. Noteworthy, only vaccines specifically authorized for use in premature infants should be used in PIs. The most immature neonates (i.e., ELBW infants) should receive their first dose of vaccine during hospitalization, in order to allow such risky groups of infants achieving sufficiently protective immunization before their discharge. This strategy also allows for adequate monitoring of cardiorespiratory function, and ultimately improves adherence to the vaccination programs.

Strategies aiming at promoting education and awareness about vaccination practices and recommendations in PI should be reinforced. The ultimate aim is to increase delivery of effective protection against vaccine-preventable diseases to these vulnerable patients since their discharge from the NICU.

Conflict of interest disclosure

All listed authors have no conflict of interest related to this article.

Authors' details

¹SC Neonatologia e TINO, Ospedale Sant'Anna, AOU Città della Salute e della Scienza, Torino, Italy. ²Hospital Clínico San Borja Arriarán, Santiago, Chile.

Published: 24 September 2015

References

1. Siegrist C-A: Neonatal and early life vaccinology. *Vaccine* 2011, **19**(25-26):3331-3346.

* Correspondence: paolomanzoni@hotmail.com

¹SC Neonatologia e TINO, Ospedale Sant'Anna, AOU Città della Salute e della Scienza, Torino, Italy

Full list of author information is available at the end of the article

2. Crawford NW, Bines JE: **Optimizing immunization in pediatric special risk groups.** *Expert Rev Vaccines* 2011, **10**(2):175-186.
3. Committee On Infectious Diseases: **Recommended childhood and adolescent immunization schedules—United States, 2012.** *Pediatrics* 2012, **129**(2):385-386.
4. Saari TN: **American Academy of Pediatrics Committee on Infectious Diseases. Immunization of preterm and low birth weight infants.** American Academy of Pediatrics Committee on Infectious Diseases. *Pediatrics* 2003, **112**(1 Pt 1):193-198.
5. Czajka H, Lauterbach R, et al: **Vaccination of preterm infants by polyvalent vaccines: immunogenicity and safety- review of literature.** *Dev Period Med* 2014, **18**(3):360-366.
6. D'Angio: **Active immunization of premature and low birth-weight infants: a review of immunogenicity, efficacy, and tolerability.** *Paediatr Drugs* 2007, **9**(1):17-32.
7. Esposito S, Fumagalli M, et al: **Immunogenicity, safety and tolerability of vaccination in premature infants.** *Expert Rev Vaccines* 2012, **11**(10):1199-1209.
8. Tozzi A, Piga S, et al: **Timeliness of routine immunization in a population-based Italian cohort of very preterm infants: Results of the ACTION follow-up project.** *Vaccine* 2014, **32**(7):793-799.

doi:10.1186/1824-7288-41-S1-A20

Cite this article as: Manzoni et al: **Issues of vaccination in premature infants: an overview.** *Italian Journal of Pediatrics* 2015 **41**(Suppl 1):A20.

**Submit your next manuscript to BioMed Central
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

