Ротавирус вакцината го штити здравјето на децата

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Активност на Ротавирусот

- Ротавирусот е најчестиот предизвикувач на акутен гастроентерит, кој ги напаѓа ентероцитите
- Најчесто ја зафаќа доенечката и возраста на малите деца
- Инфекцијата на ентероцитите води до клеточна смрт и многу често атрофија на цревните ресички
- Во еден момент, стапката на клеточна продукција во криптите не може да одржи чекор со стапката на ентероцитната загуба
- Ова резултира во намалена цревна површина, нарушување на дигестивните и апсорптивните функции и појава на акутна малапсорптивна дијареа, која може да трае сè додека не се обноват овие ентероцитни функции

Интестинална реакција при инфекции со ротавирус

- За нормална функција на интестиналната мукоза, покрај неспецифичната мукозна бариера вклучен е и комплексниот ензимски систем од групата на GST ензими кои се среќаваат по должината на целото црево

- При оштетување на клеточната мембрана на интестиналните епителни клетки, овие ензими се ослободуваат и нивните нивоа во серумот се одраз на степенот на интестинално епително оштетување. Затоа, Alpha Glutathione S Transpehrasa во серумот претставува биомаркер за интестинално епително оштетување

- Нивоата на овој ензим во серумот ја потврдуваат теоријата дека Ротавирусот може да предизвика сериозна епителна ерозија, што е покажано во бројни клинички студии

Заштита од инфекции со Ротавируси

- **ВАКЦИНА**
- **ВАКЦИНА**
- **ВАКЦИНА**

Зошто детето треба да добие вакцина против Рота вирус?

- Вакцинирањето е најдобар начин да се заштитат малите деца од рота вирусот.
- Спречува развој на симптоми на заболувањето: дијареа, повраќање, стомачна болка и дехидратација.
- Ја намалува потребата од престој во болница.
- Со вакцината се заштитени најголем процент од децата кои ја примиле (9 од 10 деца).

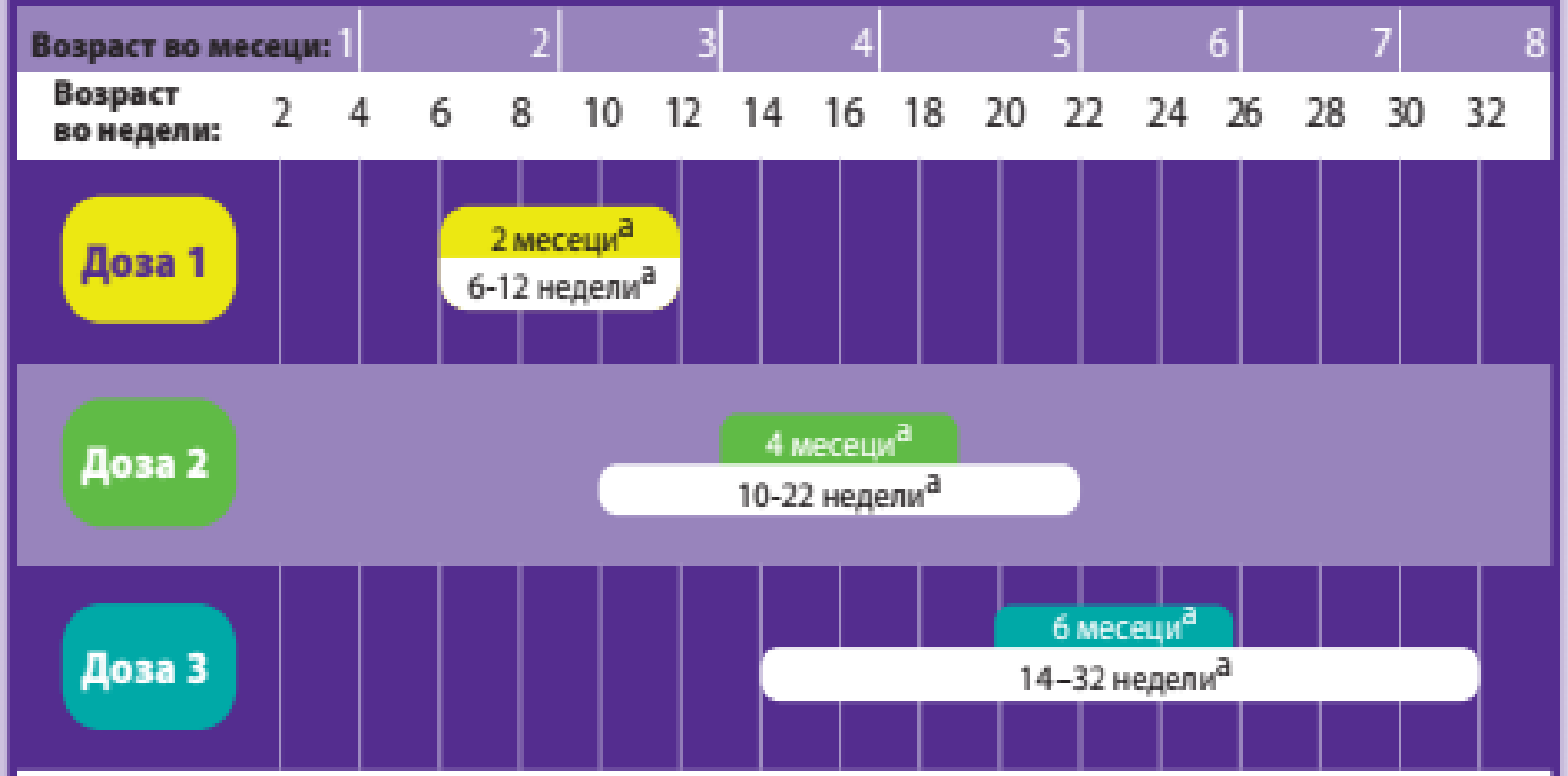
Како се спроведува?

- Вакцинацијата се спроведува со орална ротавирусна жива вакцина (RotaTeq) во три дози, со ставање капки во устата на детето, на возраст од најрано шест недели до најдоцна 32 недели.

- Првата доза од вакцината треба да се даде на возраст од најрано 6 недели, најдоцна пред детето да наполни 12 недели

- Иако крајниот период до кога третата доза треба да биде примена е 32 недели возраст, се препорачува курсот на имунизација од 3 дози да биде завршен на возраст од 20-22 недели.

Шема за вакцинирање со Rotateq[1]



[a]Првата доза на RotaTeq треба да се даде перорално, кога бебето е на 6-12 неделна возраст; следните дози се даваат на интервал најмалку од 4 недели помеѓу дозите. Третата доза не треба да се дава после 32 неделна возраст. Се препорачува курсот на имунизација од 3 дози да биде завршен пред 20-22 неделна возраст.[1]

Кои се несаканите ефекти?

- Милиони деца од 94 земји во светот безбедно ја имаат примено оваа вакцина.
- Повеќето доенчиња кои примиле ротавирусна вакцина немаат несакани ефекти од вакцината.
- Ретки се несаканите ефекти, најчесто лесно и спонтано поминуваат и може да вклучуваат вознемиреност, дијареа и повраќање.

Контраиндикации на вакцината против ротавирус

- Вакцината против ротавирусот е ефикасна и безбедна, иако секој лек може да предизвика несакани ефекти.

- **Ретките ризици и контраиндикации вклучуваат:**
  - Предиспозиција кон алергиски реакции: постои многу мал ризик од сериозна алергична реакција (анафилакса) на секоја вакцина. Затоа се советува да се поседи во амбулантата најмалку 15 минути по имунизацијата, во случај да е потребно ургентен третман.

  - До интусусцепција може да дојде (во ретки случаи) кај децата во првите три недели по добивањето на првата или втората доза на вакцината против ротавирусот. Ризикот е приближно шест дополнителни случаи на интусусцепција на секои 100.000 вакцинирани доенчиња.

Список за проверка пред имунизација

Пред доенчето да ја добие вакцината, треба да се добијат информации за следното:

- Дали е постаро од препорачаната возраст за првата доза
- Дали има здравствен проблем (има температура над 38,5°C)
- Дали имало сериозна реакција на која и да е вакцина
- Дали имало силна алергија на било што
- Дали имало интусусцепција (блокирање предизвикано кога еден дел од цревата се вовлекува во соседниот дел) или друга вродена абнормалност на цревата
- Дали прима стероидни лекови
- Дали примило трансфузија на крв или крвни продукти
- Дали прима лекови кои ја компромитираат имуноста
- Дали во семејството има член со намален имунитет или бремена жена

- И, сè е јасно за децата кои се испишани здрави во тек на неонаталниот период...

- **Дилеми:**

- Екстремно прематурни новороденчиња или други болни новородени деца кои до 12-тата недела сè уште се згрижени во Одделенијата за интензивна нега
- Доенчиња кои имаат потреба од хоспитализација, а неодамна примиле вакцина против Ротавирус

Корист наспроти штета

Посебни околности

POLICY STATEMENT

Prevention of Rotavirus Disease: Updated Guidelines for Use of Rotavirus Vaccine

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children

Committee on Infectious Diseases

Special Situations

- Preterm infants (those born at less than 37 weeks' gestation): Preterm infants should be immunized on the same schedule and with the same precautions as for term infants and under the following conditions: the infant's postnatal age meets the age requirements for rotavirus vaccine (eg, from 6 weeks through 14 weeks, 6 days of age for the first dose) and the infant is clinically stable (RV5, AI; RV1, BIII).
  - Data suggest that preterm infants are at increased risk of hospitalization from rotavirus or other viral pathogens associated with gastroenteritis during their first year of life. In clinical trials, rotavirus vaccine seemed to be generally well tolerated in a relatively small number of preterm infants. Although the lower level of maternal antibody against prevalent rotavirus serotypes in very preterm infants theoretically could increase the risk of adverse events from rotavirus vaccine, the AAP believes the benefit of immunizing infants when they are age-eligible and clinically stable outweighs the theoretical risks.
- Preterm infants in the NICU or nursery: Preterm infants who are age-eligible and clinically stable may be immunized at the time of discharge from the NICU or nursery (BIII).
- Vaccine strains of rotavirus are shed in stools of immunized infants, so if an infant were to be immunized with a rotavirus vaccine while still needing care in the NICU or nursery, at least a theoretical risk exists for vaccine virus being transmitted to infants in the same unit who are acutely ill (moderate-to-severe illness is a precaution for immunization) and preterm infants who are not age-eligible for vaccine. The AAP believes that, in usual circumstances, the risk from shedding outweighs the benefit of immunizing infants who are age-eligible for vaccine but who will remain in the NICU or nursery after immunization.
- Readmission of an immunized preterm infant to the NICU or nursery: If an infant immunized with a rotavirus vaccine requires readmission to the NICU or nursery within 2 weeks after receipt of vaccine, contact precautions should be instituted for the readmitted infant and should be maintained for 2 to 3 weeks after vaccine administration (BIII).
- Exposure of immunocompromised people to immunized infants: Infants living in households with people who have or are suspected of having an immunodeficiency disorder or impaired immune status can be immunized (BIII).

- Exposure of pregnant women to immunized infants: Infants living in households with pregnant women should be immunized according to the same schedule as infants in households without pregnant women (BIII).
  - The majority of women of childbearing age have preexisting immunity to rotavirus; therefore, the risk of infection and any subsequent theoretical risk of disease from potential exposure to the attenuated vaccine virus are believed to be very low.
- Regurgitation of vaccine: The practitioner should not readminister a second dose of rotavirus vaccine to an infant who regurgitates, spits out, or vomits during or after administration of vaccine (BIII).
  - No data exist on the benefits or risks associated with readministering a dose. The infant should receive the remaining recommended doses of rotavirus vaccine following the routine schedule (with a 4-week minimum interval between doses).
- Infants who have recently received or will receive an antibody-containing blood product: Rotavirus vaccine may be administered at any time before, concurrent with, or after administration of any blood product, including antibody-containing products, according to the routinely recommended schedule for rotavirus vaccine among infants who are eligible for immunization (BIII).
  - In theory, infants who have recently received an antibody-containing blood product might have an attenuated immune response to a dose of rotavirus vaccine. However, 2 or 3 doses of vaccine are administered in the full rotavirus vaccine series, so adequate protection is anticipated, and no increased risk of adverse events is expected.

POLICY STATEMENT

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Committee on Infectious Diseases

Ревизија на клиничкото упатство на ААП во 2009 година

SPANISH ASSOCIATION OF PAEDIATRICS

Recommendations for vaccination against ROTAvirus in PREMature newborns (ROTAPREM)☆

The main objective of these vaccines has been to reproduce the natural history of infection and protect against severe disease in the first months of life. Preterm infants are at higher risk of severe RV infection compared to full-term infants and infants with normal birth weight.

Data collected on RV vaccination in preterm infants demonstrated that RV vaccines are effective and safe, compared with full-term infants, with a marginal risk of horizontal viral transmission and dissemination when vaccination is performed during hospitalisation.

Table 3 Precautions for vaccination against rotavirus.

- The vaccine virus is shed in the faeces during the first week post vaccination. Parents are advised to wash hands after every diaper change
- Infants that live with immunocompromised individuals or pregnant women can be vaccinated
- The rotavirus vaccine should not be given to infants with moderate to severe acute gastroenteritis until it improves. Infants with mild acute gastroenteritis can receive the vaccine, especially if delaying the dose could carry a risk of missing the age window recommended for its administration in the summary of product characteristics
- Vaccination should also not be delayed on account of a mild respiratory tract illness, with or without fever. As occurs with any other vaccine, the risk associated with vaccination against rotavirus should be considered in case of moderate to severe acute illness
- The vaccine should not be given again to infants that regurgitate or vomit after administration of a vaccine dose. These infants should be given additional doses in adherence to the routine schedule
- Infants with pre-existing gastrointestinal diseases (such as congenital malabsorption syndromes or Hirschsprung disease) who are not receiving immunosuppression therapy would benefit from vaccination against rotavirus

An Pediatr (Barc). 2019;91(3):205.e1–205.e7

Final recommendation of the Sociedad Española de Neonatología and the Advisory Committee on Vaccines of the Asociación Española de Pediatría

Infection by RV continues to be a significant public health problem in developed countries, and PT infants are at higher risk of both infection and its associated complications.

Vaccination of PT infants against RV has proven as efficacious and safe as vaccination of FT infants, and the data currently available suggest that the risk of viral spread and nosocomial infection associated with vaccination during hospitalisation is very low.

The Advisory Committee on Vaccines of the Asociación Española de Pediatría recommends the inclusion of vaccination against RV for all infants in the routine immunisation schedule of Spain.[35]

In the meantime, given the increased risk of severe illness in PT infants, we recommend that all infants born PT before 32 weeks' gestation be vaccinated against rotavirus without delay if their clinical condition allows it and there are no contraindications, even if they are still hospitalised.

We recommend public funding of this vaccine under these conditions as vaccination of a risk group, not excluding the possibility of expanding vaccination to other infants born PT after 32 weeks' gestation where appropriate.

An Pediatr (Barc). 2019;91(3):205.e1–205.e7

AAP Journals & Periodicals

Fetus/Newborn Infant, Infectious Diseases, Vaccine/Immunization

Delaying Rotavirus Vaccines Until Discharge in Preterm Infants May Be Hazardous to Their Health

by Lewis First MD, MA, Editor in Chief, Pediatrics

Because preterm infants carry an increased risk of having severe complications if they contract rotavirus at a young age, especially while still hospitalized, it would make sense to consider giving the vaccine before they age out of being eligible to receive it. Yet fear of nosocomial complications to other infants in a neonatal intensive care unit (NICU) has precluded administering this vaccine prior to discharge until Hofstetter et al. (10.1542/peds.2017-1110) did a prospective cohort study to see if those fears were well-founded or more of a myth. The authors gave pentavalent rotavirus vaccine when a baby was age-eligible in the NICU. Stool specimens were then analyzed for wildtype and vaccine-type rotavirus strains for all babies in that NICU. The authors were able to vaccinate babies before they became vaccine ineligible more ably than when they were discharged without vaccination after 104 days and found that no vaccine-type rotavirus cases occurred in unvaccinated infants. They conclude that assuming infection control standards are in place when this vaccine is administered to NICU infants, it is worth it to give the vaccine rather than wait until discharge when a preterm infant is no longer eligible and could still develop rotavirus and experience a potentially severe course.

Rotavirus Immunization for Hospitalized Infants: Are We There Yet?

Barbara Pahud and Eugenia K. Pallotto

Pediatrics 2018;141;

Per current recommendations, the window for administration of rotavirus vaccine closes at 15 weeks of age.[1,2] By recommending rotavirus vaccine administration on or after discharge from the hospital, we allow critically ill infants who have required long hospital stays to leave the hospital susceptible to rotavirus. The institution where Hofstetter et al's[4] research was conducted allows immunization of eligible infants while hospitalized, yet only 32% of those eligible were immunized before discharge. Of those not immunized, 42% were no longer eligible because of age. Another article by Stumpf et al[6] has reported that 63% of very low birth weight infants did not receive rotavirus vaccine at discharge, with 75% of these infants being too old at discharge, a dismaying number of missed opportunities for vaccination.

It is time to allow otherwise eligible infants who are clinically stable to be immunized while still in the hospital. Data from this study are reassuring, as are published and unpublished data from others who have taken the lead in immunizing infants while inpatient.[3–5,9] These institutions have recognized that shedding has historically induced herd immunity, which may result in asymptomatic transmission but rarely leads to disease.[10] Other countries, such as Australia, routinely allow administration of rotavirus vaccine to hospitalized infants.[11] Individual hospitals can decide if they choose to institute contact precautions for the duration of shedding or not. We favor standard precautions, with efforts directed at hand hygiene compliance, which promote prevention of nosocomial transmission of infections. However, fear of these potential effects is not reason enough to justify preventing inpatient rotavirus vaccination. We must keep our biases as clinicians in check to help our most vulnerable patients.

Impact of Rotavirus Vaccine on Premature Infants

Jean-Michel Roué,[a,b] Emmanuel Nowak,[c] Grégoire Le Gal,[b,c] Thomas Lemaitre,[c] Emmanuel Oger,[d] Elise Poulhazan,[c] Jean-Dominique Giroux,[a] Armelle Garenne,[a] Arnaud Gagneur[a,e]

Finally, it would have been interesting to study the impact of the vaccine program in relation to the severity of prematurity, the birth weight, or the type of feeding of these children (breastfeeding versus infant formula). Unfortunately, our population of premature infants was too small to identify a significant difference or to set up modeling for each subgroup.

Despite low vaccine coverage, our study showed a significant impact of rotavirus vaccine on the number of hospitalizations of premature infants within 3 years following the immunization. This was the first population-based study taking into account the natural secular variability in rotavirus epidemics with a specific analysis of children born prematurely. Our results can be used for further assessment of rotavirus vaccine and development of guidelines for a subgroup of vulnerable infants. A national multicenter study would allow a better assessment of the potential impact of rotavirus vaccine in the subgroup of premature infants.

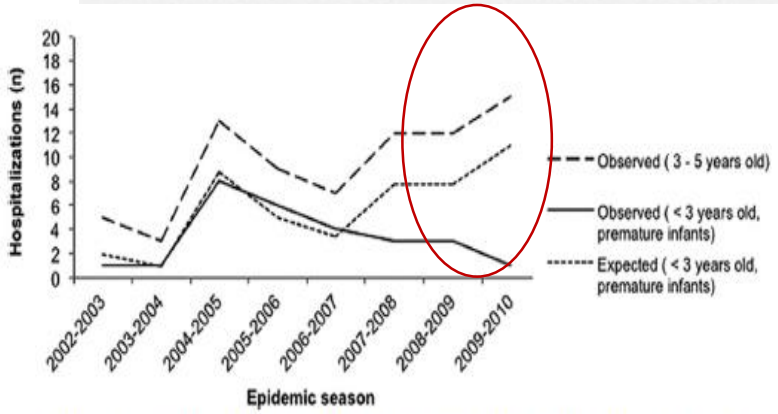

FIG 3 Observed and expected hospitalizations for rotavirus diarrhea during epidemic seasons.

EXPERT REVIEW OF VACCINES, 2016
VOL. 15, NO. 12, 1463–1465
http://dx.doi.org/10.1080/14760584.2016.1216318

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EDITORIAL

Use of rotavirus vaccines in preterm babies on the neonatal unit

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[a]Guy's and St Thomas' NHS Foundation Trust, Guy's Hospital, London, UK; [b]Oxford Vaccine Group, Department of Paediatrics, University of Oxford, Children's Hospital, Oxford, UK

7. Conclusion

The international recommendations for preterm RV vaccination eligibility differ as a result of varying expert committee opinion reviewing the same literature. The more recent recommendations by the UK and Australia reflect the absence of evidence to indicate safety concern or considerable transmission risk in age eligible, hospitalized preterm infants. Complete, age-appropriate vaccination of this highly vulnerable group should be regarded as a priority for neonatologists and others providing medical care for them. By vaccinating hospitalized infants, with appropriate infection control precautions to reduce the risk of transmission, an increased proportion of these infants, many of whom are currently unimmunized against RV, will be protected from the severe gastroenteritis.

Заклучоци и препораки

- Вакцината против Ротавирус е безбедна за најголем број од децата, навремено и предвремено родени, кои се испишани дома
- Кај децата кои сеуште се згрижени во ОИНТ, безбедно е да се даде вакцина до возраст од 12 недели, со одржување на сите принципи на хигиена и спречување на ширење на вирусот преку отстранетите пелени после употребата
- Нема забележано заболени деца од Ротавирус во ОИНТ после спроведена вакцинација кај дете-пациент во единицата (најчесто екстремно прематурните деца имаат подолг престој)
- Децата кои примиле крв/крвни деривати или друг препарат кој содржи антиген, безбедно е да се вакцинираат, но може да се очекува нешто понизок имун одговор на дадената доза
- Децата кои се хоспитализирани во ОИНТ после примена Ротавирус вакцина претходните 2 недели, треба да се третираат со сите хигиенски процедури како и тие што се вакцинираат во самата ОИНТ до крајот на третата недела од приемот на вакцината
- Децата кои живеат во средина со бремени жени и/или имунокомпромитирани лица, можат да ја примаат вакцината според календарот, со совети за правилно, хигиенско одлагање на нечистите пелени

Ви благодарам на вниманието

Прашања?