to re-evaluate the benefit of vaccination against influenza in children.

1834 SUBCUTANEOUS HUMAN HEPATITS B IMMUNOGLOBULIN (FOVEPTA) IN NEONATES OF HBV-CARRIER MOTHERS

doi:10.1136/archdischild-2012-302724.1834

¹R Schloesser, ²W Kamin, ³G Kriván, ³P Siklós, ⁴W Mendling, ¹H Buxmann. ¹Neonatology, Goethe-University Frankfurt/Main, Frankfurt/Main; ²Neonatology, Protestant Hospital for Children and Adolescents; Hamm, Germany; ³Neonatology, St. Stephen Hospital, Budapest, Hungary; ⁴Gynecology, Vivantes Hospital Friedrichshain, Berlin, Germany

Background and Aims Postnatal active and passive immunization is recommended for prevention of hepatitis-B-virus (HBV) transmission in any offspring of a HBV-carrier mother. To improve convenience in application for neonates and for doctors we studied the efficacy and safety of a subcutaneous (s.c.) human hepatitis B immunoglobulin (Fovepta).

Methods In an open, prospective multicenter trial neonates of HBV carrier mothers were randomized to receive a single dose of the high concentrated human hepatitis immunoglobulin Fovepta (200 IU, 0.4 ml) either subcutaneously or intramuscularly (i.m.). The passive immunization was combined with an active vaccination against hepatitis B. Efficacy was defined as anti-HBs-serum concentration of >100 IU/L 48 to 72 hours post vaccination. Adverse events (AE) were documented during hospital stay and follow-up surveillance of 7–15 months.

Results 31 neonates were included (17 s.c. and 14 i.m.). One infant of the s.c. group had a post-dose anti-HBs level of 81.0 IU/l. All other study patients reached a level of >100 IU/l. AEs were more often in i.m. group patients, but without statistical significance. There was no AE, which led to discontinuation from the study. 24 of 31 infants completed the follow up period. No hepatitis B breakthrough infection was observed.

Conclusions Subcutaneous vaccination with a high concentrated hepatitis immunoglobulin (Fovepta) is effective and safe in newborn infants.

(Main results of the study are accepted for publication in J Perinat Med).

1835 LIVE ATTENUATED VACCINES INDUCE GUT CATHELICIDIN ANTIMICROBIAL PEPTIDE RESPONSE IN NEONATES - A NATURAL EXPERIMENT

doi:10.1136/archdischild-2012-302724.1835

SM Ahmad, M Rashid, J Alam, R Raqib. Systems Vaccinology Group, Center for Vaccine Sciences, ICDDR, B, Dhaka, Bangladesh

Background and Aims Oral polio (OPV) and BCG vaccines are recommended to be given at birth for protection against tuberculosis and polio, while observational studies in developing countries demonstrate reduction of mortality from infections other than target disease. The mechanism of such non-specific beneficial effects is unknown. We investigated gut antimicrobial peptides response during neonatal period who had received these vaccines simultaneously within 48-hour of birth.

Methods In a cross sectional study design, stool samples were collected from infants at 1 month of age who had (n=36) or had not (n=42) received both vaccines within 48 h of birth. Antimicrobial peptides- human cathelicidin (LL37) were measured in the extracted stool samples by ELISA. Demographic and anthropometric data were collected from the clinic and structured questionnaires.

Results Infants of the vaccinated group had 39.8% higher excretion of LL37 in stool at 1 month of age (P=0.02). Such induction is observed only to the infants who born normally (P=0.01). Sex difference had no effect. Multivariate analysis showed higher LL37 response (P=0.08) among vaccinated infants after adjusting for sex,

place of birth, mother age, postnatal age and mode of delivery. Including birth weight along with other variables indicates birth weight is significant predictor of LL37 (P=0.05) irrespective of vaccination status.

Conclusions Induction of mucosal antimicrobial peptide LL-37 following on-birth live attenuated vaccination may provide protection against other infections and possible explain the observed non-specific survival benefit in developing countries where low birth weight remains significant public health problem.

1836 INFLAMMATORY RESPONSES TO HEPATITIS B VIRUS VACCINE AMONG HEALTY TERM INFANTS AT BIRTH

doi:10.1136/archdischild-2012-302724.1836

¹Ç Çelik, ¹G Demirel, ¹FE Canpolat, ¹O Erdev, ^{1,2}U Dilmen. ¹Neonatology, Zekai Tahir Burak Maternity Teaching Hospital; ²Pediatrics, Yildirim Beyazit University, Faculty of Medicine, Ankara, Turkey

Hepatitis B virus (HBV) infection continues to be a serious global health problem. Primary prevention through immunization remains the most effective way of controlling the spread of HBV. HBV vaccines are immunogenic in newborns and infants, and provide high seroprotection. During the course of HBV vaccination, we observed that substantial number of term infants had elevated CRP values without sepsis. Therefore, we prospectively studied IL-6 and CRP responses to HBV immunization, seeking to demonstrate that immunization stimulates elevation of IL-6 and CRP levels without clinical deterioration, and that usually there is no need for antibiotic treatment.

Subjects for the study were healthy term infants without signs and symptoms of sepsis. IL-6, CRP, and white blood cell (WBC) levels were determined before immunization and 24 hours after immunization.

Study population included 70 infants. Significant increases in CRP were seen 24 hr after vaccination (p=0.000). Although CRP levels of 22 infants (31.4%) at second evaluation were above the cut-off (4.82 mg/ml), none of these infants had clinical symptoms of sepsis. After 48–72 hours, CRP level of all patients normalized with no blood culture positivity.

In conclusion, our study showed that HBV vaccine is highly immunogenic and responsible for CRP elevation in term infants without sepsis after first vaccination at birth. To the best of our knowledge this is the first study evaluating CRP response to HBV vaccine at birth in term infants. We suggest that this response should be encountered in differentiation of early neonatal sepsis to avoid unnecessary antibiotic use.

1837 EVALUATION OF IMMUNE RESPONSE TO HEPATITIS B VACCINE IN THE INFANTS DISCHARGED FROM NEONATAL INTENSIVE CARE UNIT

doi:10.1136/archdischild-2012-302724.1837

¹FC Kilic, ²N Tekin, ³EC Dinleyici, ²A Aksit. ¹Pediatrics; ²Dept. of Pediatrics, Division of Neonatology; ³Pediatrics, PICU, Eskisehir Osmangazi University, Eskisehir, Turkey

The Aim of this study is to evaluate the effect of presumed risk factors on antiHBs response to vaccination in NICU graduates. The study group consisted of 150 infants (105 term, 45 preterm) who were discharged from the NICU. Hepatitis B vaccine was administered according to birth weight adjusted schedule. Infants with birth weight less than 2000 g were vaccinated at intervals of 0.1.2 and 12 months. Other infants were vaccinated with 0, 1, 6 months schedule. AntiHBs titers were studied 3 weeks to 2 months after the last vaccine dose. AntiHBs titers were classified into 4 groups as < 10mIU/mL, 11–99 mIU/mL, 100–999 mIU/mL, >1000 mIU/mL consequently. Distribution of the antiHBs levels of pre-term infants were different than term infants (p<0.05). Antibody

titers increased as birth weight and gestational age increased ($p < 0.05$). AntiHBs titers were not different between the healthy term and sick term infants ($p > 0.05$). Overall seroconversion rate was 97.3% (preterm 95.6%, term 98.05%). In four infants (2 preterm, 2 term) seroconversion were not sustained. Antibody response were not effected from the presumed risk factors such as fresh frozen plasma, IVIG, exchange transfusion, other blood products transfusions. Inflammatory processes such as sepsis, pneumonia, preterm rupture of membranes had no effect on the titers either. As a conclusion preventable levels of antiHBs were achieved in preterm and sick term infants with the schedule routinely used. We concluded that presumed risk factors and transfusion of blood products did not have negative effect on immune response to Hepatitis B vaccine.

1838 REVIEW OF NEONATES BORN IN BELFAST TRUST IDENTIFIED WITH RISK FACTOR(S) FOR TUBERCULOSIS BUT DID NOT RECEIVE BCG VACCINATION

doi:10.1136/archdischild-2012-302724.1838

¹S Mullen, ¹S Christie, ²R Carlisle. ¹Community Paediatrics; ²Infectious Diseases, Royal Belfast Hospital for Sick Children, Belfast, UK

Aims Data from the Public Health Agency (PHA) for 2009–10 identified 70 infants from the Belfast Trust who had been identified with a risk factor for Tuberculosis (TB) as not receiving the BCG vaccination prior to discharge-theoretically missing 16% of this population (total with risk factor 438).

Given the rise in TB, with figures in 2009 from the Health Protection Agency (HPA) identifying 9,040 cases in the UK, our aim was to review the data to clarify why these infants were being missed.

Methods We reviewed the neonatal notes for those infants who did not get the BCG vaccination despite a positive risk factor, categorising as per results section. We further reviewed the data for parental refusal to analyse documentation.

Results Unable to access 7% of charts.

Parental refusal 23%, received vaccination 17%, deferred for medical reason 17%, no identifiable risk factor in hospital 12%, medical decision not required 10%, missed 7%, transferred prior to discharge 4%, transcription error 3%.

Parental refusal group –50% clarified the risk factor, 29% documented risks vs benefits explained, 43% offered follow-up advice and 35% documented written info given.

Conclusions 1.1% were truly missed (5/438).

Parental refusal was the largest category for not receiving vaccination and had poor documentation to explain why. We identified a breakdown in how data is transported to PHA/or recorded in PHA.

We recommended education for staff, highlighting the need for proper documentation. We also recommended a review of how information was passed to the PHA.

1839 THE ROLE OF CFU OF BCG VACCINE IN TUBERCULIN SKIN REACTION

doi:10.1136/archdischild-2012-302724.1839

F Fallah, G Eslami, R Pourbaba, H Goudarzi, S Taheri, N Marhamati. *Pediatric Clinic Infection Research Center, Tehran, Iran*

In view of the importance of tuberculosis in some countries BCG vaccination is highly effective in preventing the development of tuberculosis immediately at birth. The aim of this study is evaluation of BCG by PPD.

Method In this study, the inoculum of live BCG organisms in vaccinated infants at birth was evaluated and the correlation between amount of CFU and PPD reaction were examined at 3 months of age. For this purpose, 854 newborn infants in health centers affiliated to *Shaheed Beheshti University of Medical Sciences* were studied at the age of 3 months. Tuberculin skin tests were performed in the pasteur Institute and other health centers. After 72 hours, PPD induration diameter was measured. The comparison of the results with chi - square test showed there is a significant correlation between the two variables (size of PPD reaction and live organisms of BCG vaccination).

Results After evaluating live organisms in BCG vaccination, it was concluded that the amount of live organisms in many vaccines is more than 3 million while others are less. The following have been obtained as a result of assessment of PPD reaction in vaccinated infants: those vaccinated by live organisms, more than 3 million 93.4% showed PPD positive reaction in vaccinated infants but less than 3 million 69.2% showed PPD positive reaction.

Conclusion Thus, the number of live organisms in vaccination can play an effective role in the size of tuberculin skin reaction.

1840 OUTBREAKS, OUTCRIES, OUTLIERS: WHO RESPONDS TO MEASLES ELIMINATION GOALS IN THE EUROPEAN REGION WITH INNOVATIVE BEHAVIOUR CHANGE TOOLS

doi:10.1136/archdischild-2012-302724.1840

¹R Butler, ²N Likhite. ¹Vaccine Preventable Diseases and Immunization; ²Consultant with Vaccine Preventable Diseases and Immunization, WHO Regional Office for Europe, Copenhagen, Denmark

Background and Aims Measles outbreaks in the World Health Organisation (WHO)'s European Region continue to threaten the achievement of the 2015 elimination goal. Over 37,000 measles cases were reported in 2011 alone. *Failure to vaccinate* is the principal obstacle to optimal national and sub-national immunity. In a context where *loss of public confidence* in vaccination is often cited, experts deplore the presence of vaccination **outliers** and **outcries** of anti-vaccine lobbyists.

Generating demand for vaccination is a pivotal strategy for elimination. However, the traditional “one-size fits all” approach to immunisation communications no longer meets current needs. WHO's aim is to offer a toolkit for Member States to design effective targeted vaccination demand generation campaigns.

Methods A review of literature on vaccination behaviours shows that reasons for not vaccinating are multiple and complex. Drawing on international best practices in health behaviour change communications and social marketing, WHO Regional Office for Europe has developed an adaptable, innovative conceptual framework and tools to help countries

1. understand and identify environmental opportunity, supportive ability and personal motivation determinants of vaccination behaviours,
2. target susceptible populations and
3. tailor evidence-based programmes to increase uptake of vaccination.

Results and conclusions Building Member States' capacity to profile and tailor responses to susceptible populations will result in higher vaccination coverage and accelerate progress towards eliminating measles in the European Region. The approach and tools will be piloted in two Member States in 2012. Further, they will be implemented by WHO in partnership with Ministries of Health from 2013 on.