3rd World Summit on

Neonatology, Pediatrics and Developmental Medicine

September 26, 2022 | Webinar

Possible link between stunting and pediatric environmental enteropathy in resource limited settings

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Stunting remains one of the most pressing global health problems with roughly one out of four children less than 5 years of age affected. Stunting is defined as a height-for-age z-score [less than or equal to] 2 SD of the median height of the WHO reference population. Rehabilitation programs have been less effective due to the persistent vicious cycle between under nutrition and infection. While the prevalence of stunting has slightly decreased globally in the past two decades, it has only marginally decreased in Sub-Saharan Africa, and the actual number of affected children has increased. Stunting is a syndrome with severe longterm consequences including increased risk of illness and mortality and delayed psychomotor development. The treatment of stunted children is challenging to date as the underlying etiology and pathophysiological mechanisms remain unclear. The current potential causes of stunting range from inadequate food to poor hygiene and repeated infections. Stunting is a complex entity that may reflect several etiologies, particularly a poor, unbalanced diet and insufficient vitamin/micronutrient intake. It also involves social factors, including family's resources and configuration, as well as the broader political and economic conditions in which children live. In recent years, accumulating evidence has shown that a chronic, inflammatory syndrome of the small intestine, called Pediatric Environmental Enteropathy (PEE), may play a major role in this syndrome. PEE is a subclinical condition generally caused by constant fecaloral contamination, a common scenario in resource limited setting, resulting in increased permeability of the small intestine and influx of immune cells into the gut epithelium. It is now hypothesized that PEE may play an important role in the pathophysiology of stunting. The main objective of this paper is to describe the intestinal dysbiosis observed in the context of stunting and to link it to PEE. Secondary objectives include the identification of the broader socio-economic environment and biological and environmental risk factors for stunting and PEE. We also discuss host outcomes such as mucosal and systemic immunity and psychomotor development and possible interventions in resource limited settings.

Keywords: Stunting, Pediatric environmental enteropathy, Resource limited settings, Under-five children.

Biography

Dr. Beatrice Nyanchama Kiage Mokua has completed her PhD at the age of 37 years from Christian Albrecht's University (CAU), Kiel, German. She is a lecturer at Jomokenyatta University of Agriculture and Technology at the Department of Food science and Technology. She has papers in reputed journals.

Received: July 15, 2022; **Accepted**: July 17, 2022; **Published**: October 14, 2022

Nina Ivanova, Neonat Pediatr Med 2022, Volume 08

Experimental treatment of hemolytic disease of the newborn

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A lot of diseases are connected with hemolysis: hemolytic disease of new-born infants, paroxysmal nocturnal hemoglobinuria, malaria, and some medicines also cause hemolysis. In addition, the coronavirus COVID- 19 lowers the amount of hemoglobin due to damage to the erythrocyte membrane. The association of autoimmune hemolytic anemia during COVID-19 infection was described.

Hemolytic Disease of the Newborn (HDN) is a blood disorder in a fetus or newborn infant which can be fatal in some infants. The process of developing hemolytic disease is simple: during pregnancy through the placenta from the fetus to the mother Rh antigens enter. In response to this "invasion", maternal blood "produces" Rh antibodies to destroy Rh-positive erythrocytes of the fetus, damaging his liver and spleen, organs hematopoiesis, and bone marrow. Maternal antibodies entering the bloodstream of a child contribute to hemolysis (destruction) of his red blood cells, known prophylactic treatment of pregnant women with Rhesus conflict for the prevention of hemolytic disease of the newborn. But this drug can cause allergic reactions, sometimes accompanied by anaphylactic shock. Therefore, the development of a non-toxic antihemolytic drug capable of inhibiting hemolysis is an urgent task.

In the study of polar negatively charged lipids we found a unique property of some mixtures of lipids inhibiting and preventing hemolysis. As a result of these studies, we have developed a liposomal anti-hemolytic drug. The antihemolytic preparation is the liposomes with the original lipid's structure on the basis of naturally negatively charged lipids. The antihemolytic preparation has been developed for treatment of the hemolytic disease of newborns. Research of liposomal antihemolytic preparation has been carried out in vivo and in vitro. For checking the biological activity of preparations for treatment of hemolytic disease of newborns we used models of animals with induced hemolytic disease. The hemolytic disease of newborns has been simulated on experimental animals (rabbits, rams) by introduction of the fatal dose of antibodies against erythrocytes. The experimental animals were observed under the certification received from the Committee on Bioethics and Deontology.

As much as possible, a positive therapeutic effect in vivo has been reached: 100 % of animals with induced hemolytic disease were healthy after one injection of our liposomal antihemolytic preparation. All animals of the control group with induced hemolytic disease without the preparation were lost. We discovered that the liposomes interact with the erythrocytes membrane to make them more stable against haemolysis and inactivate antibodies. Based on these studies, the technology of the sterile antihemolytic drug was developed for the treatment of hemolytic disease of the newborn (1% dispersion of liposomes with particle's size 140 nm).

Conclusion: This preparation can and should be used in pregnant women with Rhesus conflict with the fetus. The Rh factor in the baby's blood is set already from the third month of intrauterine development. Therefore, from this time, Rh antigens begin to enter the mother's body and respectively, from this time or earlier it would be possible to introduce pregnant drugs and repeatedly the drug is non-toxic, biodegradable, lipids are completely utilized in the body.

This anti-hemolytic liposomal drug can be used to create liposomal vaccines and loaded antiviral liposomal drugs to protect red blood cells from COVID-19 viral infection.

The composition of this drug is original and is the intellectual property of Dr. Nina Ivanova and is protected by patents because due to the war and the Russian attack on Ukraine, we will not be able to continue our research and bring the drug to its finished form. Therefore, we are ready for any kind of cooperation.

Biography

Nina Ivanova completed her PhD from the State University Thin Chemical Technologies 1985 (Moscow, Russia). The specialty: bioorganic chemistry, chemistry of natural and physiologically active substances. After that she worked for 22 years as the head of the lipid laboratory in Biolek Company (Kharkiv, Ukraine). Since 2007 she worked as the leading researcher of the immunology and molecular genetics laboratory, SE "Institute of dermatology and venereology of National Medical Science of Ukraine". She has more 80 publications and 30 patents. Her work: developing of the liposomal preparations for the treatment of Alzheimer's disease, hemolytic diseases, syphilis, anthelmintic in parasitology, antiinfluenzal vaccine, antimycotics.

Received: July 15, 2022; **Accepted**: July 17, 2022; **Published**: October 14, 2022

Reyes Hernandez Jaime, Neonat Pediatr Med 2022, Volume 08

Retinopathy and bronchopulmonary dysplasia in premature infants intermitted in the neonatal unit of the hospital of services for state workers or civil service social security and services institute (ISSSTE)

Reyes Hernandez Jaime

Professor at University of San Luis Potosi, Mexico

Background: In neonatal units, oxygen therapy is widely used in the care of the Premature Infants (PTI). Exposure to excess oxygen is at least one of the causes of retinopathy of PTI, proliferative disease of the incompletely vascularized Retina in Prematurity (ROP), one of the causes of blindness; in Mexico it has a prevalence of 26.1% in PTI <36 weeks, birth weight <2500 g, oxygen therapy in their treatment, presence or absence of ROP or BPD by diagnosis, follow-up of at least one consultation at discharge.

Instrument: Record sheet of perinatal and clinical variables, oxygen therapy treatment and its repercussions.

Ethics: Approval of the Ethics Committee of the ISSSTE, S.L.P., 004/2015.

Conclusion: A higher frequency of ROP was observed with weight 1000-1500 g and 20-32 SDG and of DBP in oxygen therapy >21 days. Prevalence of ROP 23.9% higher than that reported in the ISSSTE 3rd level hospital "Centro Medico 20 de November" (10%) and similar to that of the ISSSTE Regional Hospital of the State of Mexico (24.1%). The development of a protocol for the administration of oxygen in the hospitalized premature newborn is recommended, which guides the performance of the multidisciplinary health team in the institution according to the current official regulations.

Biography

Reyes Hernández Jaime has done PhD Degree and he is a Full Professor, Faculty of Nursing and Nutrition in University of San Luis Potosi, Mexico. His Research Areas are Nutrition, Chronic Diseases and Bioavailability of Dietary Components.

Received: July 15, 2022; **Accepted**: July 17, 2022; **Published**: October 14, 2022

Seyed, Neonat Pediatr Med 2022, Volume 08

The relationship between TORCH infection with gastrointestinal tract surgery in neonates

Seyed

Professor at Islamic Azad University, Iran

Background: The aim of this study was to investigate the association between gastrointestinal tract surgery and TORCH infection in neonates referring to Milad Hospital during 2019 and 2020.

Materials and methods: In this cross-sectional study, 20 neonates with gastrointestinal surgery were selected and investigated in the Milad Hospital during 2019 and 2020. The results of TORCH founds in the IgG and IgM antibody titre tests in mother and neonate including toxoplasmosis, rubella, Cytomegalovirus and herpes infections in the subjects were determined and compared to other variables. Collected data were analyzed with Kolmogorov–Smirnov, Shapirowilk, Chi-Square and Mann-Whitney tests at a significant level of 0.05.

Results: Maternal gestational age was from 33 to 40 weeks. 80% of the subjects were boy. The subject weights were in the range of 1480 to 3800 grams. Parity (90%) and gravid (65%) were reported 1 for most mothers. Duodenal atresia with 40% was the most common cause of gastrointestinal surgery among newborns. In our study, 10% of all infants undergoing gastrointestinal tract surgery had TORCH infection-type CMV (two cases), who had undergone gastrointestinal surgery due to Choledochal cyst and duodenal atresia. These results was not significant (P>0.05). Also, the incidences of TORCH infection were not significantly correlated with gestational age, sex, the parity and gravity of individuals. (0.05<P)

Conclusion: The prevalence of TORCH infection among infants undergoing gastrointestinal surgery varies from 0% to 20%. CI_95=[0-20]. There was no association between gastrointestinal surgery and TORCH infection. However, given the importance of the issue and the lack of sufficient studies in this area, larger studies are needed to confirm or reject these results scale.

Biography

Dr. Seyed had completed his PhD in 26 years old from Azad Tehran University and completed pediatric specialty in Zanjan University in Iran and had been working in NICU ward Milad hospital in the Tehran for almost 20 years. He is working as Faculty of pediatrics, Tehran medical sciences, Islamic Azad University, Tehran, Iran.

Received: July 15, 2022; **Accepted**: July 17, 2022; **Published**: October 14, 2022

Sumia Fatima, Neonat Pediatr Med 2022, Volume 08

Women's health through the ages from myths and taboos to awareness and role of community health workers in maternal and neonatal care in urban and rural areas of Pakistan

Sumia Fatima

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Globally, 2.4 million children died in the first month of life in 2020–approximately 6,500 neonatal deaths every day. National mortality rate in Pakistan in 2020 is still 40.4 deaths per 1000 live births. Pakistan also has a quite high maternal mortality rate of 140 per 100,000 live births. The ratio is also 26pc higher in rural areas-199 deaths, than urban areas-158 deaths. Community health workers, especially in rural areas, can play a significant role in decreasing neonatal and maternal mortality, by educating the people about the causation, as well as ensuring safe birth practices. The objectives of our study are to analyse the level of knowledge, and practices of mothers about neonatal care and to assess the contribution of community health workers in promoting the knowledge and care for neonates.

Methodology: It is an on-going research. A cross-sectional study is being conducted among the mothers of neonates (a child below the age of 28 days) of District Headquarters Hospital, Rawalpindi also among the health workers of tribal districts of Waziristan. We have used USAID Questionnaire Assessment of Community Health Workers to Prevent Neonatal Mortality as the data collection tool.

Results and Conclusion: After literature review we came to know that in developing countries like Pakistan, where there are an estimated 0.82 physicians, 0.57 nurses and midwives, and 0.06 community health workers per 1000 population, the health care system can be improved and neonatal mortality decreased by training and supervising the community health workers. Brazil improved its public health system by focusing on community awareness. The bottom line in all of this is that the world of global health is moving rapidly towards a new framework of health systems. In which the real foundation of a health system is what takes place in the community. The results of this study have yet to be finalized.

According to our research, 70-80% mothers responded that community health workers do not conduct workshops in their districts about breastfeeding practices, about maternal diet and health, about family planning, about basic neonatal care etc. When we will break the taboo to talk openly about maternal health, maternal mortality rate and neonatal mortality rate will decrease significantly. Women's health has been neglected over the years with the uterus being called from the word "hysteria", with the woman labelled witches and neglected medical opportunities. It has gone a long way from myths to awareness. But still there is a long way to go to overcome the burdens of the deaths of our mothers and neonates.

Biography

Dr Sumia Fatima, MBBS 4th year, Public Health Specialization Course Imperial College London, Emergency Medicine Course from United Arab Emirates University, Psychological First Aid Provider Course John Hopkins University. 18 International Research Presentations in Various Countries, 5 publications, 8 submissions, 1 systematic review ongoing. She is an avid researcher and has presented earlier at conferences of 90th Catholic Medical Association, Orlando, in Paris and Turkey. Currently got her researches accepted for Zurich, Switzerland and Athens, Greece. But she specifically wanted to attend this conference because neonatology is very close to her heart and she wants to make a contribution so every child born in this world is given optimum care and love.

Received: July 15, 2022; **Accepted**: July 17, 2022; **Published**: October 14, 2022