Scientific Tracks & Sessions
May 16, 2022

Nursing 2022





28th Global Experts Meeting on

Neonatal Nursing and Maternal Healthcare

May 16, 2022 | Webinar

Mental Health & Psychiatry Nursing | Neonatal Critical Care | Nursing Management | Neonatal Surgery | Advanced Nursing Practices | Rehabilitation therapy

Chair
Ivan Noe Martinez Salazar
Military Central Hospital | Mexico

Session Introduction

Title: Liver involvement in SARS-CoV-2 vertically infected newborn
Gianluca Terrin | University La Sapienza | Italy

Title: Ruptured Pseudoaneurysm of the Posterior Tibial Artery after Percutaneous Achilles Tenotomy
Jacobus Rademan | Robert Mangaliso Sobukwe Hospital | South Africa

Title: Right Ventricular Strain Is associated with increased length of stay after tetralogy of fallot repair
Ranjini Srinivasan | Langone Medical Center | US

28th Global Experts Meeting on
Neonatal Nursing and Maternal Healthcare
May 16, 2022 | Webinar

Received date: 15 April, 2022 | Accepted date: 22 April, 2022 | Published date: 23 May, 2022

Liver involvement in SARS-CoV-2 vertically infected newborn

Gianluca Terrin
University La Sapienza, Italy

The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes the disease termed coronavirus disease 2019 (COVID-19), was declared a pandemic on March 2020 (1). The main clinical manifestations of COVID-19 involve the upper and lower respiratory system; however, it was demonstrated that other organs and systems might be implicated, including the liver and the gastrointestinal (GI) tract (2). Recent studies suggest that children are less likely to become infected with the virus compared to adults (3, 4). In addition, newborns and infants have clinical symptoms and laboratory and radiologic abnormalities less specific and less evident compared to older individuals (5). Therefore, many cases might remain subclinical or unrecognized in early life, due to neonatal stronger innate immune response and lower propensity to proinflammatory cytokine response (6). Hepatic injury in COVID-19 adults and children has been reported (2, 6–9). Liver injury was characterized by slight increases in hepatocyte-related enzymes, including alanine aminotransferase (ALT) and aspartate aminotransferase (AST). In children with COVID-19, hepatitis has been reported to be associated with a severe presentation of the disease named multisystem inflammatory syndrome in children (MIS-C) (7). To our knowledge, hepatic involvement in SARS-CoV-2- infected term-born newborns has never been described. A recent report of the World Health Organization (WHO) defines the modality of mother-to-child transmission of SARS-CoV-2 (10). It mainly occurs horizontally in the early postnatal period, i.e., via droplets, respiratory secretions, saliva and direct contact, but oro-fecal transmission is also described. Vertical transmission, i.e., in utero or intrapartum, is also possible. The consequences of the vertical transmission on the fetus and newborn are still poorly defined.

We report liver involvement in a case of neonatal SARS-CoV-2 infection vertically acquired. The detection of the virus by RT-PCR in nasopharyngeal swab at age < 24 h defines the possibility of vertical transmission of SARS-CoV-2 (10). In addition, the neonate was born by C-section with intact amniotic membranes, thus suggesting a transplacental transfer of the virus (10). Compared to other viruses, SARS-CoV-2 is less placentotropic but can infect and cross the placenta due to the binding to angiotensin converting enzyme- 2 (ACE2) receptors expressed in different feto-placental tissues. Neonates infected by SARS-CoV-2 can alternatively be asymptomatic (45%) or develop symptomatic COVID-19 infection (55%); in this latter case, the most common symptoms include fever, GI, respiratory and neurological manifestations (16). Liver injury was reported in COVID-19 adult and pediatric patients and can be attributed to different factors, including hypoxic–ischemic damage viral or drug-induced hepatocyte injury. In this case, liver injury was probably caused by a direct coronavirus-mediated mechanism, whose mechanistic details, albeit linked to ACE2 receptor expression in cholangiocytes and hepatocytes (59.7 and 2.6%, respectively), remain presently unknown. Alternative explanations for neonatal liver involvement were likely excluded by the evidences that the neonate had a normal acid–base status and did not receive any medication before the first blood test examination. Maternal tests were negative for major congenital infections and neonatal blood cultures were negative; also, the Expanded Newborn Screening performed according to the Italian National Institute of Health neonatal screening program excluded inherited metabolic disorders. Unsurprisingly, we found the persistence of the virus in the feces until the last sample analyzed at 7 DOL. Emerging data suggest the prolonged presence of SARS-CoV-2 RNA in stool samples or rectal swabs even after the patients' respiratory specimens become negative and much attention has been paid to the possibility of viral shedding from the GI tract and fecal–oral transmission. Recent literature suggested that liver involvement, in case of SARS-CoV-2 infection, is possible, but to our knowledge, there are no reports that clearly described this association. A report by Kalamdani et al. described the case of 12 newborns positive for SARS-CoV-2. Nine out of 12 newborns were tested for liver enzymes (AST and ALT) and reported a slight increase of median values of AST and ALT, lower compared to our case report and in the range of normality considering the vast majority of cases. Moreover,

authors reported just one value and it is not specified in which day of life the blood drown was performed. Sisman et al. described a case report of a preterm infant with intrauterine transmission of SARS-CoV-2 infection with slightly elevated AST (64 U/l range 10–35) and normal ALT; however, the trend of liver enzyme elevation was not described. Zeng et al. described a case series of 33 neonates born to mothers with COVID-19. Among them, three newborns tested positive for SARS-CoV-2. One had elevated AST (63 U/L) and ALT (88 U/L) and was born preterm (31 weeks GA). Moreover, his clinical course was complicated by respiratory distress syndrome, pneumonia and suspected sepsis; thus, other causes of elevated transaminases were plausible. We presented a case of a well-documented neonatal infection, describing AST and ALT trend over time and exclusion of other causes of hepatic involvement. This clinical case suggests that possible liver damage should be sought in all newborns born to COVID-19-positive mothers, regardless of the clinical condition. However, further studies are needed to confirm our observations. Longer follow-up and prospective studies are needed to determine the real impact of SARS-CoV-2 virus in the liver.

Recent Publications

1. Rosa Sessa, Emanuela Anastasi, Gabriella Brandolino, Roberto Brunelli, Marisa Di Pietro, Simone Filardo, Luisa Masciullo, Gianluca Terrin, Maria Federica Viscardi and Maria Grazia Porpora. What is the Hidden Biological Mechanism Underlying the Possible SARS-CoV-2 Vertical Transmission? A Mini Review. Front. Physiol. Published online May 05, 2022. doi.org/10.3389/fphys.2022.875806

2. Ömer Erdeve , Emel Okulu , Yogen Singh , Richard Sindelar , Mehmet Yekta Oncel , Gianluca Terrin , Giovanni Boscarino , Ali Bülbül , Hannes Sallmon , Begüm Atasay, Fahri Ovalı , Ronald I Clyman. An Update on Patent Ductus Arteriosus and What is Coming Next. Turk Arch Pediatr. Published online March 2022. doi: 10.5152/TurkArchPediatr.2022.21361

3. Maria Chiara De Nardo, Chiara Di Mari, Gianluigi Laccetta, Giovanni Boscarino Gianluca Terrin , Enteral and parenteral energy intake and neurodevelopment in preterm infants: A systematic review. Nutrition. Published online December 2021. doi.org/10.1016/j.nut.2021.111572

4. Gianluca Terrin , Maria Di Chiara , Giovanni Boscarino , Valentina Metrangolo , Francesca Faccioli , Elisa Onestà , Antonella Giancotti , Violante Di Donato , Viviana Cardilli , Mario De Curtis, Morbidity associated with patent ductus arteriosus in preterm newborns: a retrospective case-control study. Ital J Pediatr. Published online January 2021. doi: 10.1186/s13052-021-00956-2

5. Giovanni Boscarino , Maria Giulia Conti, Federica Pagano, Maria Di Chiara, Chiara Pannucci, Elisa Onestà, Rita Prota, Giorgia Deli, Lucia Dito, Daniela Regoli , Salvatore Oliva , Gianluca Terrin. Complementary Feeding and Growth in Infants Born Preterm: A 12 Months Follow-Up Study. Children (Basel). Published online November 2021. doi: 10.3390/children8121085.

Speaker Biography

Gianluca Terrin is an Associate Professor and Member of the Department BoardMaternal Child and Urological Sciences of the "La Sapienza" University of Rome, Director of the Complex Operational Unit of Neonatology, Pathology and Therapy Neonatal Intensive, Policlinico Umberto I, Rome.

e: gianluca.terrin@uniroma1.it

28th Global Experts Meeting on

Neonatal Nursing and Maternal Healthcare

May 16, 2022 | Webinar

Received date: 02 May, 2022 | Accepted date: 06 May, 2022 | Published date: 23 May, 2022

Ruptured Pseudoaneurysm of the Posterior Tibial Artery after Percutaneous Achilles Tenotomy

Jacobus Rademan
Robert Mangaliso Sobukwe Hospital, South Africa

Congenital talipes equinovarus (CTEV), or clubfoot, is the the most common encountered musculoskeletal defect encountered at birth. Most cases present as an isolated deformity, with up to half of them presenting with bilateral deformity. CTEV have also been reported to present as part of syndromic phenomena. Dr Igancio Ponseti proposed a serial casting programme to correct the foot's cavus, forefoot adduction, varus and equinus. Up to 90% of infants will require a tendo-achilles (TA) tenotomy for the persisting equinus deformity. TA tenotomy is deemed a relatively safe procedure, with the most authors citing bleeding as the most common complication. The Achilles tendon finds itself surrounded by rich network of blood vessels and nerves. We present a case of a ruptured pseudoaneurysm from the posterior tibial artery after percutaneous TA tenotomy was performed. This is a very rare complication and to our knowledge, only one other posterior tibial artery pseudoaneurysm has been reported.

Recent Publications

1. Chaudhry M, Alessandrini M, Rademan J, Dodgen TM, Steffens FE, van Zyl DG, Gaedigk A, Pepper MS. Impact of CYP2D6 genotype on amitriptyline efficacy for the treatment of diabetic peripheral neuropathy: a pilot study. Pharmacogenomics. 2017 Apr;18(5):433-443. doi: 10.2217/pgs-2016-0185. Pharmacogenomics. 2017 Mar 28.

2. Rademan J. Ruptured pseudoanuerysm of the posterial tibial artery after percutaneous Achilles tenotomy. BMJ Case Rep. 2022 Mar 24;15(3):e232847. doi: 10.1136/bcr-2019-232847.

3. KOTZE, J; RADEMAN, J; STRYDOM, K-A. The antimicrobial effect of Thromboseel against multidrugresistant and drug-sensitive organisms: An in vitro study. South African Journal of Plastic & Reconstructive Aesthetic Surgery & Burns, [S.l.], v. 4, n. 2, p. 35, feb. 2022. Date accessed: 11 May. 2022. doi:10.7196/sajprasb.1464.

Speaker Biography

Rademan obtained a BSc degree in Human Physiology from the University of Pretoria in 2009 and completed a Honours degree in Pharmacology in 2010. This was followed by a medical degree from the University of the Witwatersrand in 2014. Dr. Rademan completed his mandatory two years of internship at Chris Hani Baragwanath Academic Hospital, followed by a year of community service at Job Shimankana Hospital in Rustenburg. Showing a keen interest in trauma and reconstructive surgery early on in his medical career, Dr. Rademan has spent his junior years of surgical training rotating through some of the country's busiest trauma and surgical units.

e: jacobusrademan@yahoo.com.org

28th Global Experts Meeting on

Neonatal Nursing and Maternal Healthcare

May 16, 2022 | Webinar

Received date: 26 April, 2022 | Accepted date: 30 April, 2022 | Published date: 23 May, 2022

Right Ventricular Strain Is associated with increased length of stay after tetralogy of fallot repair

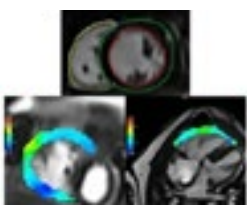
Ranjini Srinivasan
Langone Medical Center, US

Background: Little is known regarding right ventricular (RV) remodeling immediately after TOF repair. We sought to describe myocardial deformation by cardiac magnetic resonance imaging (CMR) after TOF repair and investigate associations between these parameters and early post-operative outcomes.

Methods: Fifteen infants underwent CMR without sedation as part of a prospective pilot study after undergoing complete TOF repair, prior to hospital discharge. RV deformation (strain) was measured using tissue tracking, in addition to RV ejection fraction (EF), volumes and pulmonary regurgitant fraction. Pearson correlation coefficients were used to determine associations between both strain and CMR measures/clinical outcomes.

Results: Most patients were male (11/15, 73%), with median age at TOF repair 53 days [interquartile range (IQR) 13,131]. Most patients had pulmonary stenosis (vs. atresia) (11/15, 73%) and seven (47%) received a transannular patch as part of their repair. RV function was overall preserved with mean RV EF of 62% (standard deviation [SD] 9.8). Peak radial and longitudinal strain were overall diminished [mean/SD 33.8% (±18.3) and -15.5% (±6.4), respectively]. Longer hospital length of stay after TOF repair was associated with worse RV peak radial ventricular strain [correlation coefficient (r): -0.54, p=0.04]. Greater pulmonary regurgitant fraction was associated with shorter time to peak radial RV strain (r= -0.55, p=0.03).

Conclusion: In this small study, our findings suggest presence of early decrease in RV strain after TOF repair and its association with hospital stay when changes in ejection fraction and RV size are not yet apparent.



Top Panel: Endocardial and Epicardial Contour Tracings of the right ventricle (left) and left ventricle (right) at End- Diastole for calculation of strain via tissue tracking

Bottom Panel: Representative strain maps of the right ventricle free wall in an infant with tetralogy of Fallot after repair

Left panel: Right ventricle short axis circumferential strain Right panel: Right ventricle long axis longitudinal strain.

Recent Publications

1. Ortigoza M, Yoon H, Goldfeld K et al. Efficacy and Safety of COVID-19 Convalescent Plasma in Hospitalized Patients: A Randomized Clinical Trial. JAMA Intern Med. Published online December 13, 2021. doi:10.1001/jamainternmed.2021.6850
2. Srinivasan R, Faerber JA, DeCost G, Zhang X, DiLorenzo M, Goldmuntz E, Fogel M, Mercer-Rosa L. Right Ventricular Strain Is Associated with Increased Length of Stay after Tetralogy of Fallot Repair. J Cardiovasc Imaging. 2021;29:e63. https://doi.org/10.4250/jcvi.2021.0069
3. Srinivasan R, Yun P, Neuhaus S et al., Cardiac MRI identifies valvular and myocardial disease in a subset of ANO5-related muscular dystrophy patients, Neuromuscular Disorders. https://doi.org/10.1016/j.nmd.2020.07.001
4. Srinivasan R, Sambatakos P, Lane M, et al. Successful Increase of Outpatient Clinic Continuity in a Fellowship Quality Improvement Project. Pediatr Qual Saf. 2020;5(3): e306. Published 2020 May 20. doi:10.1097/pq9.0000000000000306
5. Srinivasan R, Weller R, Chelliah A, Einstein AJ. Multimodality Cardiac Imaging in a Patient with Kawasaki Disease and Giant Aneurysms. Case Reports in Pediatrics, vol. 2016, Article. doi: 10.1155/2016/4298098.

Speaker Biography

Srinivasan is a pediatric cardiologist and advanced imaging faculty at the New York University, Langone Medical Center and Grossman School of medicine. She as expertise in cardiac MRI, CT, echocardiography and fetal echocardiography. She is also commit ted to education of trainees and mentorship for young pediatric cardiologists. This recently authored work focuses on the youngest infants diagnosed with severe congenital heart disease and new ways to monitor these patietns with the aid of cross-sectional imaging.

e: ranjini.srinivasan@nyulangone.org