Title: Biomimetic bright optotheranostics for metastasis monitoring and multimodal image-guided breast cancer therapeutics

Author: Rajendra Prasad, Berney Peng, Barbara ´ B. Mendes , Hailey I. Kilian, Mahadeo Gorain , Huijuan Zhang c,1 , Gopal Chandra Kundu, Jun Xia, Jonathan F. Lovell , Joao Conde

Abstract: Nanoparticle formulations blending optical imaging contrast agents and therapeutics have been a cornerstone of preclinical theranostic applications. However, nanoparticle-based theranostics clinical translation faces challenges on reproducibility, brightness, photostability, biocompatibility, and selective tumor targeting and penetration. In this study, we integrate multimodal imaging and therapeutics within cancer cell-derived nanovesicles, leading to biomimetic bright optotheranostics for monitoring cancer metastasis. Upon NIR light irradiation, the engineered optotheranostics enables deep visualization and precise localization of metastatic lung, liver, and solid breast tumors along with solid tumor ablation. Metastatic cell-derived nanovesicles (~80 ± 5 nm) are engineered to encapsulate imaging (emissive organic dye and gold nanoparticles) and therapeutic agents (anticancer drug doxorubicin and photothermally active organic indocyanine green dye). Systemic administration of biomimetic bright optotheranostic nanoparticles shows escape from mononuclear phagocytic clearance with (i) rapid tumor accumulation (3 h) and retention (up to 168 h), (ii) real-time monitoring of metastatic lung, liver, and solid breast tumors and (iii) 3-fold image-guided solid tumor reduction. These findings are supported by an improvement of X-ray, fluorescence, and photoacoustic signals while demonstrating a tumor reduction (201 mm3) in comparison with single therapies that includes chemotherapy (134 mm3), photodynamic therapy (72 mm3), and photothermal therapy (88mm3). The proposed innovative platform opens new avenues to improve cancer diagnosis and treatment outcomes by allowing the monitorization of cancer metastasis, allowing the precise cancer imaging, and delivering synergistic therapeutic agents at the solid tumor site.

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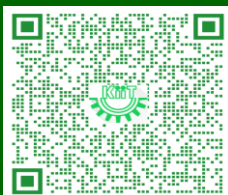
Title: To leave no one behind: Assessing utilization of maternal newborn and child health services by all the 13 particularly vulnerable tribal groups (PVTGs) of Odisha, India

Author: Jyoti Ghosal, Madhusmita Bal, Arundhuti Das, Bhuputra Panda, Manoranjan Ranjit, Manas Ranjan Behera, Sonali Kar, Sudhir Kumar Satpathy, Ambarish Dutta and Sanghamitra Pati

Abstract: Background Indigenous tribal people experience lower coverage of maternal, newborn and child healthcare (MNCH) services worldwide, including in India. Meanwhile, Indian tribal people comprise a special sub-population who are even more isolated, marginalized and underserved, designated as particularly vulnerable tribal groups (PVTGs). However, there is an extreme paucity of evidence on how this most vulnerable sub-population utilizes health services. Therefore, we aimed to estimate MNCH service utilization by all the 13 PVTGs of the eastern Indian state of Odisha and compare that with state and national rates. Methods A total of 1186 eligible mothers who gave birth to a live child in last 5 years, were interviewed using a validated questionnaire. The weighted MNCH service utilization rates were estimated for antenatal care (ANC), intranatal care (INC), postnatal care (PNC) and immunization (for 12–23-month-old children). The same rates were estimated for state (n=7144) and nationally representative samples (n=176 843) from National Family Health Survey-5. Results The ANC service utilization among PVTGs were considerably higher than national average except for early pregnancy registration (PVTGs 67% versus national 79.9%), and 5 ANC components (80.8% versus 82.3%). However, their institutional delivery rates (77.9%) were lower than averages for Odisha (93.1%) and India (90.1%). The PNC and immunization rates were substantially higher than the national averages. Furthermore, the main reasons behind greater home delivery in the PVTGs were accessibility issues (29.9%) and cultural barriers (23.1%). Conclusion Ours was the frst study of MNCH service utilization by PVTGs of an Indian state. It is very pleasantly surprising to note that the most vulnerable subpopulation of India, the PVTGs, have achieved comparable or often greater utilization rates than the national average, which may be attributable to overall signifcantly better performance by the Odisha state.

**URL: https://health-policy-systems.biomedcentral.com/articles/10.1186/s12961-023-01101-7**

Title: SARS-CoV-2 seroprevalence in patients with autoimmune rheumatic diseases versus family controls: a multi-city cross-sectional survey

Author: • Ramnath Misra, • Debdutta Bhattacharya, • Sakir Ahmed, • Sanjiv Amin, • Vineeta Shobha, • Alakendu Ghosh, • Sapan C. Pandya, • Debaprasad Parai, • Prasanta Padhan, • Subhadra Priyadarshini, • Ipsa Mohapatra, • A. Raj Kumar Patro, • Ambika Prasad Mohanty & • Sanghamitra Pati

Abstract: There is uncertainty regarding the effect of the SARS-CoV-2 infection on patients with autoimmune rheumatic diseases (AIRD) who are on immunosuppressive drugs. We did a multicity cross-sectional seroprevalence study conducted in five different cities in India before COVID-19 immunization. Patients with a diagnosis of AIRD and DMARDs were included. Relatives of the patients, preferably staying in the same household with no known rheumatic diseases served as controls. Serum IgG antibodies to SARS-CoV-2 Receptor Binding Domain (RBD) of the spike protein and nucleoprotein (NP) were assayed in eight hundred and eighty nine sera (subjects with disease = 379 and in subjects without disease = 510). IgG antibodies to either RBD and/or NP were positive in 135 (36%) subjects with AIRD as compared to 196 (38%) controls. The seroprevalence of anti-RBD and anti-NP varied between different cities but was not significantly different between subjects with and without disease in Mumbai, Ahmedabad, Bengaluru and Bhubaneswar. However, the occurrence of IgG antibodies to RBD was significantly ($p < 0.05$) lower in subjects with disease (28/65;43%) as compared to subjects without disease (42/65;65%) in Kolkata, where the positivity rate was lower in connective tissue disease group than in inflammatory arthritis group. Overall, patients with rheumatic diseases on DMARDs have IgG antibodies to RBD and NP of SARSCoV-2 at a comparable level with that of subjects without disease, but the level of antibodies to RBD is lower in patients with connective tissue disease on immunosuppressive drugs in one centre.
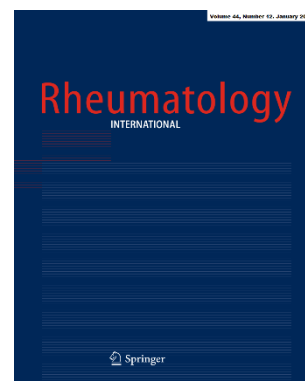
**URL:** https://link.springer.com/article/10.1007/s00296-023-05489-x

Title : Correlates of breakthrough COVID-19 in vaccinated patients with systemic sclerosis: survival analysis from a multicentre international patient-reported survey.

Author: ⍰ Sakir Ahmed, ⍰ Latika Gupta, ⍰ Masataka Kuwana, ⍰ John D. Pauling, ⍰ Jessica Day, ⍰ Naveen Ravichandran, ⍰ Mrudula Joshi, ⍰ Ioannis Parodis, ⍰ Parikshit Sen, ⍰ Kshitij Jagtap, ⍰ Elena Nikiphorou, ⍰ Sreoshy Saha, ⍰ Vishwesh Agarwal, ⍰ Tulika Chatterjee.

Abstract:
This study aimed to assess the incidence, predictors, and outcomes of breakthrough infection (BI) following coronavirus disease (COVID-19) vaccination in patients with systemic sclerosis (SSc), a risk group associated with an immune-suppressed state and high cardiopulmonary disease burden. Cross-sectional data from fully vaccinated respondents with SSc, non-SSc autoimmune rheumatic diseases (AIRDs), and healthy controls (HCs) were extracted from the COVAD database, an international self-reported online survey. BI was defined according to the Centre for Disease Control definition. Infection-free survival was compared between the groups using Kaplan–Meier curves with log-rank tests. Cox proportional regression was used to assess the association between BI and age, sex, ethnicity, and immunosuppressive drugs at the time of vaccination. The severity of BI in terms of hospitalization and requirement for oxygen supplementation was compared between groups. Of 10,900 respondents, 6836 fulfilled the following inclusion criteria: 427 SSc, 2934 other AIRDs, and 3475 HCs. BI were reported in 6.3% of SSc, 6.9% of non-SSc AIRD, and 16.1% of HCs during a median follow-up of 100 (IQR: 60–137) days. SSc had a lower risk for BI than HC [hazard ratio (HR): 0.56 (95% CI 0.46–0.74)]. BIs were associated with age [HR: 0.98 (0.97–0.98)] but not ethnicity or immunosuppressive drugs at the time of vaccination. Patients with SSc were more likely to have asymptomatic COVID-19, but symptomatic patients reported more breathlessness. Hospitalization [SSc: 4 (14.8%), HCs: 37 (6.6%), non-SSc AIRDs: 32(15.8%)] and the need for oxygenation [SSc: 1 (25%); HC: 17 (45.9%); non-SSc AIRD: 13 (40.6%)] were similar between the groups
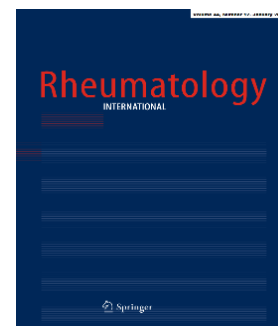
Title: 2023 Update of Indian National Association for Study of the Liver Consensus on Management of Intermediate and Advanced Hepatocellular Carcinoma: The Puri III Recommendations

Author: Ashish Kumar, Subrat K. Acharya , Shivaram P. Singh z , Ajay Duseja , Kaushal Madan, Akash Shukla, Anil Arora, Anil C. Anand, Ankur Bahl, Arvinder S. Soin , Bhawna Sirohi , Debnarayan Dutta, Dinesh Jothimani , Dipanjan Panda, Gagan Saini , Joy Varghese , Karan Kumar , Madhumita Premkumar , Manas K. Panigrahi, Manav Wadhawan , Manoj K. Sahu , Mohamed Rela , Naveen Kalra , Padaki N. Rao , Pankaj Puri , Prashant Bhangui , Premashis Kar , Samir R. Shah , Sanjay S. Baijal , Shalimar, Shashi B. Paul, Shivanand Gamanagatti , Subash Gupta , Sunil Taneja , Vivek A. Saraswat , Yogesh K. Chawla

Abstract:

Hepatocellular carcinoma (HCC) presents significant treatment challenges despite considerable advancements in its management. The Indian National Association for the Study of the Liver (INASL) first published its guidelines to aid healthcare professionals in the diagnosis and treatment of HCC in 2014. These guidelines were subsequently updated in 2019. However, INASL has recognized the need to revise its guidelines in 2023 due to recent rapid advancements in the diagnosis and management of HCC, particularly for intermediate and advanced stages. The aim is to provide healthcare professionals with evidence-based recommendations tailored to the Indian context. To accomplish this, a task force was formed, and a two-day round table discussion was held in Puri, Odisha. During this event, experts in their respective fields deliberated and finalized consensus statements to develop these updated guidelines. The 2023 INASL guidelines offer a comprehensive framework for the diagnosis, staging, and management of intermediate and advanced HCC in India. They represent a significant step forward in standardizing clinical practices nationwide, with the primary objective of ensuring that patients with HCC receive the best possible care based on the latest evidence. The guidelines cover various topics related to intermediate and advanced HCC, including biomarkers of aggressive behavior, staging, treatment options, and follow-up care.
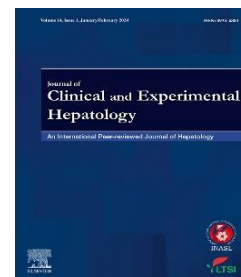
**URL: https://www.sciencedirect.com/science/article/pii/S0973688323006904?via%3Dihub**

Title: A Study of Impact of Fixed-Dose Albumin Infusion on Outcome in Patients With Cirrhosis and Infection: A Randomized Open-label Clinical Trial

Author: Divas Kumar a,* , Shally Awasthi a , Shweta Singh b , Girdhar G. Agarwal c , Anuj Kumar Pandey a , Abbas Ali Mahdi d , Thekkumkara Surendran Anish e , A.R. Somashekarf , Sonali Kar g , Suma Nair h , Joseph L. Mathew i , Mushtaq A. Bhatj , B.N. Mahanta k , Kuldeep Singh l , C.M. Singh

Abstract:

Background and aim: Antibiotics and albumin infusion constitute the standard of treatment in patients with decompensated cirrhosis who have spontaneous bacterial peritonitis (SBP). Recent studies have also shown that the use of albumin in patients with advanced liver disease who have infections other than SBP leads to the resolution of acute and chronic liver failure and prevents the development of nosocomial infections. The recommended dose of albumin for these patients is out of reach for many in resource-limited settings like India. The evidence for this recommendation is also scarce. This study aimed to assess the efficacy of a lower dose of albumin infusion in addition to antibiotics on short-term mortality and morbidity in patients with cirrhosis and infections. Patients and methods: A prospective, open-label, randomized control study was performed. Consecutive patients with cirrhosis and infections were randomized in a 2:1 ratio into two groups: group A (116) and group B (58) patients. In addition to antibiotics and standard medical therapy, group A was given albumin in a dose of 20 g/day for five days, and group B was given the recommended dose (1.5 g/kg/body weight and 1 g/kg body weight on days one and three, respectively). The primary outcome was in-hospital mortality. Secondary outcomes were improvements in clinical and laboratory parameters. Results: Except for etiology, all the baseline clinical and laboratory variables in both groups were comparable. The in-hospital mortality in groups A and B was (11 [10.67%] vs. 6 [10.09%], (P = 0.965). The duration of hospitalization, 30-day mortality, improvement in shock and sensorium, and absolute improvements in serum creatinine, international normalized ratio (INR), and serum bilirubin were also comparable in both groups. Conclusion: Low-dose albumin infusion in patients with cirrhosis and infections can have the same results as standard-dose albumin and can be used in resource limited situations.
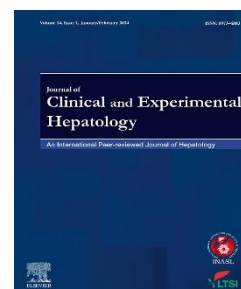
URL: https://www.sciencedirect.com/science/article/pii/S0973688323006916

Title : Impact of nutritional status on the outcome of transjugular intrahepatic portosystemic shunt in patients with cirrhosis: a systematic review

Author : Suprabhat Giri, Prajna Anirvan, Mansi Chaudhary, Taraprasad Tripathy, Ranjan Kumar Patel, Mitali Madhumita Rath, Manas Kumar Panigrahi

Abstract: Objectives: Malnutrition and sarcopenia have been reported to adversely affect the outcome of patients with cirrhosis of the liver. There is an emerging body of evidence suggesting malnutrition and sarcopenia increase the risk of hepatic encephalopathy (HE) and mortality after transjugular intrahepatic portosystemic shunt (TIPS). The current systematic review aims to determine whether the body of evidence supports an association between nutritional status and post-TIPS outcomes in patients with cirrhosis.

Methods: Electronic databases of PubMed, Embase, and Scopus were searched from inception to June 3, 2023, for studies analysing the effect of nutritional status on post-TIPS outcomes in patients with cirrhosis.

Results: A total of 22 studies were included in the systemic review. Assessment of sarcopenia was done by skeletal muscle index (SMI) at the L3 level, transversal psoas muscle thickness, psoas muscle density, malnutrition as per ICD, relative sarcopenia with excess adiposity, lipid profile, controlling nutritional status score, body composition analysis, hospital frailty risk score, and visceral and subcutaneous fat area index. Ten out of 12 studies in this systematic review showed a significant association with the incidence of post-TIPS HE. Thirteen out of 14 studies reported that the presence of malnutrition was associated with increased odds of mortality following TIPS. One study reported sarcopenia as an independent predictor of liver failure, and another study reported that Pre-TIPS SMI was an independent predictor of substantial improvement in post-TIPS SMI.

Conclusions: The current systematic review shows that the presence of pre-TIPS malnutrition or sarcopenia is an independent predictor of adverse outcomes after TIPS. Incorporating these parameters into present prediction models can provide additional prognostic information.
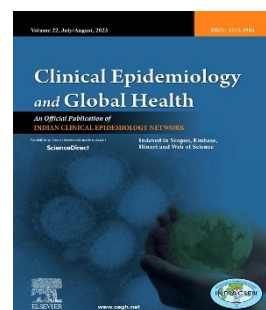
URL: https://academic.oup.com/bjr/article/97/1154/331/7499337

Title: Association of blood lead level with cognitive performance and general intelligence of urban school children in ten cities of India

Author: Divas Kumar, Shally Awasthi , Shweta Singh , Girdhar G. Agarwal , Anuj Kumar Pandey, Abbas Ali Mahdi, Thekkumkara Surendran Anish, A.R. Somashekarf, Sonali Kar, Suma Nair , Joseph L. Mathew, Mushtaq A. Bhat, B.N. Mahanta, Kuldeep Singh, C.M. Singh

Abstract: Background: Lead is toxic to children and effects the cognitive development. The primary objective was to assess the association of blood lead level (BLL) with cognitive performance and general intelligence, of urban school going children aged 6–16 years from ten cities of India. Secondary objective was to assess the association of anaemia with cognitive performance and general intelligence. Method: In this cross-sectional multicentric study, general intelligence was assessed by colored progressive matrices (CPM)/standard progressive matrices (SPM) test, visual-spatial ability through coding, attention and concentration ability through digit span and working memory through arithmetic tests. Blood samples of participants were collected to assess lead levels. Socioeconomic status and anthropometric measures were also collected. Results: From April 2019–February 2020, 2247 participants with equal gender distribution were enrolled from 60 schools. The median (IQR) BLL was 8.8 (4.8, 16.4) µg/dl. We found that BLL was significantly associated with attention and concentration ability and 1 µg/dl increase in BLL decreases the performance by odds of 1.02 (95 % CI 1.01–1.03). Anaemia is found to be associated with 'borderline or dull normal' performance for general intelligence [Adjusted Odds Ratio (AOR) = 1.93 (95 % CI 1.53–2.45)], visual-spatial [AOR = 1.35 (95 % CI 1.03–1.76)], attention and concentration [AOR = 1.30 (95 % CI 1.02–1.66)], working memory [AOR = 1.69 (95 % CI 1.34–2.12)] abilities. Conclusion: Since increasing BLL decreases cognitive performance and anaemia decreased both cognitive performance and intelligence, attempts must be made to keep BLL as low as possible and prevent exposure in school going children.

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