

1. Use of Probiotics for the Management of Acute Gastroenteritis in Children: An Update

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Acute gastroenteritis (AGE) has remained one of the leading causes of under 5 mortality, especially in the developing nations. Fluid therapy continues to be the key treatment modality. Many probiotics have fought the war for the recognition as an adjunct treatment. This updated guideline replaces the earlier recommendation given by ESPGHAN in 2014. The earlier guideline stated with low quality of evidence, that *Lactobacillus rhamnosus GG* (LGG) and *Saccharomyces boulardii* were strongly recommended and *L reuteri* DSM 17938 was weakly recommended. This update takes into account the characteristics of 16 systematic reviews and meta-analyses published since 2010, including 9 reviews focusing on all probiotics, and 7 strain-specific systematic reviews, still 2 RCTs of high quality for any strain that provided benefit when used for treating AGE were not identified. Weak recommendations with low *certainty* of evidence and dosage were stated for:

1. *S boulardii*: 250–750 mg/day, for 5–7 days
2. *L rhamnosus GG*: $\geq 10^{10}$ CFU/day, typically 5–7 day
3. *L reuteri* DSM 17938: $1-4 \times 10^{10}$ CFU/day, for 5 days
4. *L rhamnosus* 19070–2 and *L reuteri* DSM 12246: 2×10^{10} CFU of each strain/d, for 5 days

They also stated strong and weak recommendations against *L helveticus* R0052 and *L rhamnosus* R0011, and *Bacillus clausii* strains O/C, SIN, N/R, and T respectively. They have also expressed concerns regarding adverse effects as bacteremia or fungemia in, children on immunosuppression therapy; premature babies; ones with structural heart disease; hospitalized children and those having presence of a central venous catheter.

2. Response to Terlipressin and Albumin Is Associated With Improved Liver Transplant Outcomes in Patients With Hepatorenal Syndrome

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This study was aimed to evaluate the response to treatment with terlipressin and albumin on post-transplant outcomes in patients with acute kidney injury-hepatorenal syndrome (AKI-HRS). Though liver transplant (LT) is the best modality for AKI-HRS, treatment with terlipressin plus albumin, restores renal function in 40% to 70% of patients, which improves the survival. AKI-HRS was defined as AKI stage ≥ 2 or AKI stage 1 with a serum creatinine (SCr) level > 1.5 mg/dL; no response (no decrease in AKI stage and $SCr \geq 1.5$ mg/dL) after diuretic withdrawal and albumin at the dose of 1 g/kg/day for 2 days; absence of signs of parenchymal kidney damage (24-hour proteinuria < 500 mg, red blood cells in urine < 50 /high resolution field, normal renal ultrasonography); absence of shock and or treatment with nephrotoxic drugs. Response to terlipressin and albumin was defined as the decrease in SCr to a value within 0.3 mg/dL of the baseline value. The study population consists of 82 patients with AKI-HRS, who had **consisted** terlipressin and albumin for a median of 15 days, and underwent LT.

The control group was constituted by 259 cirrhotic patients who underwent LT during the same period. Out of 82 patients, 42 patients (52%) achieved response to the therapy. The non responders had higher Scr as compared to the responders. The MELD score was significantly lower in the responders and they required less renal replacement therapy (RRT). Non responders had a significantly lower 30-day transplant-free survival (33% vs. 63%). The overall transplant rate (~ 70-77%) and mortality (23%) were similar in the two groups. The overall transplant-free survival rate was significantly higher in responders than non-responders (6% vs. 0%). In the post-transplant period, non-responders had more severe AKI and a higher need for RRT than responders and the control group. Also, in the first year post LT the incidence of chronic kidney disease was significantly higher in non-responders than responders and the control group (65%, 31%, and 19%).

3. Ascitic calprotectin for the diagnosis of spontaneous bacterial peritonitis: a systematic review and meta-analysis

Dibas, Mahmoud; Rajab, Ahmad Mamoun; Zaghoul, Mohamed Saddik; Atiah, Mohammad J.; Aljundi, Saadi; Amir, Ahmed; Saquib, Nazmus (European Journal of Gastroenterology & Hepatology: September 2020 - Volume 32 - Issue 9 - p 1075-1083. doi: 10.1097/MEG.0000000000001709)

Spontaneous bacterial peritonitis (SBP) is an acute bacterial infection of ascitic fluid seen in patients with advanced cirrhotic liver diseases. The diagnosis of SBP is based on a polymorphonuclear (PMN) cell count of >250 cells/mm³ in the ascitic fluid and a positive bacterial culture without an intraabdominal surgical source of infection. Counting PMN requires expertise, is time consuming and has observer variations. Automated flow cytometry is not widely available. Blood culture may be false negative in 10-60% of patients and is time taking too. Calprotectin is a calcium and zinc binding protein found exclusively in neutrophils. Based on the fact that its level is

proportional to the level of neutrophils present in a particular fluid, a high calprotectin level indicates an inflammatory or infectious process. This was a meta analysis based on studies that reported calprotectin as a diagnostic marker of SBP in cirrhotics, published in PubMed, EMBASE, Cochrane Library, Scopus, Web of Science, and Google Scholar, with search words "Calprotectin or Calgranulin" and 'liver cirrhosis' or cirrhotic" and "bacterial infection or Spontaneous Bacterial Peritonitis". They concluded that the pooled sensitivity (0.91) and specificity (0.87) of ascitic calprotectin were high for detection of SBP and the test demonstrated a high AUC (0.92) and DOR (71.91), which were further emphasized its diagnostic accuracy. It is available as a bedside test, so it can be used for a quick diagnosis of SBP. Although the meta analysis demonstrated the clinical utility of calprotectin in SBP, a clear diagnostic cutoff value for the diagnosis of SBP could not be defined due to the heterogeneity of the different studies. There were studies which measured C-reactive protein (CRP), interleukin-6, mean plasma volume, etc along with calprotectin and improved the sensitivity. They observed that measurement of calprotectin is not a gold standard for diagnosing SBP, so its interpretation should be done in the light of clinical and microbiological findings.

4. Extrapancreatic infections are common in acute pancreatitis and they are related to organ failure: a population-based study

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In most of the cases of acute pancreatitis, the inflammation is self limiting; however, in 8-20 % of cases severe acute pancreatitis or organ failure might occur. In 15-32 % of patients, extra pancreatic infections as pneumonia and spontaneous

bacteraemia can occur in the course of pancreatitis. This study was aimed to investigate the occurrence of extra pancreatic infections in a population-based cohort of patients with first-time acute pancreatitis and their potential relation to patient outcome, in particular organ failure. The electronic medical records of all the patients with first time acute pancreatitis were collected in terms of demographics, admission and discharge dates, severity, etiology, local or systemic complications, organ failure, comorbidities, need of ICU care etc., and scrutinized. Primary bacteremia was diagnosed on the basis of positive blood cultures and infections as pneumonia, urinary tract infection, skin and soft-tissue infection, were defined according to the conventional criteria.

Data of a total of 1457 patients were analysed. A total of 277 infections as extra pancreatic infections occurred in 221/1457 (15%) patients, and 27/1457 (2%) had pancreatic infections or a combination of both was seen in 12/27(44%). Most common sites of extra pancreatic infections were lungs, the urinary tract, and the bile ducts. Severe acute pancreatitis developed in 144 patients, out of which 80 (56%) patients diagnosed with an infection, extra pancreatic (n=62) or pancreatic (n=18). Out of 67 patients who developed pancreatic necrosis, 51(84%) had

infection. There were certain predictors of infections also. Younger population did not have infections though they had pancreatic infection and had less comorbidity. It was also noted that extra pancreatic infections were more often seen in biliary acute pancreatitis mainly due to development of cholangitis. In patients having extra pancreatic or pancreatic infections, organ failure, systemic complications, severe acute pancreatitis, and need for intensive care was more commonly seen; whereas local complications, organ failure, and severe acute pancreatitis occurred more often in pancreatic compared to extra pancreatic infections. It was concluded after statistical analysis that extra pancreatic infections mainly pneumonia and urinary tract infections occurred in about 15% and pancreatic infections in about 2% of patients with acute pancreatitis and both extra pancreatic and pancreatic infections were independent predictors of organ failure leading to increased mortality.

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