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Hospital-acquired Malnutrition in Paediatric Patients: A Multicentre Trial Focusing on Prevalence, Risk Factors, and Impact on Clinical Outcomes

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Publish Date: 2021 Jan 25

Authors: Saengnipanthkul S, Chongviriyaphan N, Densupsoontorn N, Apiraksakorn A, Chaiyarit J, Kunnangja S, Wongpratoom S, Papakhee S, Det-Amnatkul W, Monwiratkul J, Saengpanit P, Limthongthang P, Panthongviriyakul C.

Alteration of nutrient metabolism during hospital stay may cause a deterioration in patients' nutritional status. The aim of this study was to determine the prevalence and possible risk factors for nutritional deterioration in hospitalized children. A multicentre prospective study was conducted among the patients aged 1 month to 18 years in tertiary-care hospitals, between December 2018 and May 2019. Demographic data, illness, and nutritional assessment on the first and the last day of admission were collected. There were 623 patients enrolled in this study with the median age of 4.3 years. Two thirds of the patients had at least one underlying disease. Eighty-eight percent of the patients were admitted with mild medical conditions including a scheduled cycle of chemotherapy or immunosuppressive drugs, minor infection, and non-invasive procedures. The prevalence of nutritional deterioration (reduction in body mass index ≥ 0.25 Z-score) was 24% and was associated with a significantly higher rate

of nosocomial infection (24% vs. 11%, $p < 0.001$) compared to patients without hospital-acquired malnutrition. Risk factors included moderate to severe medical conditions (AOR 1.90, 95% CI 1.09-3.31, $p = 0.024$), pneumonia (AOR 1.85, 95% CI 1.05-3.28, $p = 0.034$), seizure (AOR 2.82, 95% CI 1.28-6.19, $p = 0.01$), and surgery (AOR 2.98, 95% CI 1.60-5.56, $p = 0.001$). Nutritional management showed a significant reduction in the incidence of hospital-acquired malnutrition and a trend towards a 60% decrease in infectious complications in patients with moderate to severe medical conditions. Conclusions: Approximately one fourth of pediatric patients developed malnutrition during hospitalization. Nutritional screening, assessment, and treatment should be implemented to improve the outcomes of hospitalized pediatric patients. What is Known: Malnutrition at admission has a negative impact on outcomes of patients, including prolonged hospitalization, increased costs of care, and a higher rate of nosocomial infection. What is New: Hospital-acquired malnutrition can occur regardless of prior nutritional status and is predominantly related to illness severity. Malnourished patients with nutritional intervention experience an improvement in their nutritional status as well as a lower risk of developing hospital morbidity during hospitalization.

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Human Milk Levels of 2'-Fucosyllactose and 6'-Sialyllactose are Positively Associated with Infant Neurodevelopment and Are Not Impacted by Maternal BMI or Diabetic Status

Publication: J Nutr Food Sci

Publish Date: 2021 Jan 10

Authors: Elena Oliveros, María J Martín, Francisco J Torres-Espínola, M Teresa Segura-Moreno, María Ramírez, Angela Santos, Rachael Buck, Ricardo Rueda, Mireia Escudero, Andrés Catena, Hatim Azaryah, Cristina Campoy

Human milk oligosaccharides are the third most abundant solid component of human milk and are associated with multiple health benefits. Whether or not certain maternal factors influence human milk oligosaccharide concentrations remain unclear.

In a pilot study, human milk samples from overweight, obese, normal weight and gestational diabetic mothers in the PREOBE study were collected at 1 month postpartum. Eighty two samples were analyzed by UHPLC-MS/MS to determine 2'-

fucosyllactose (2'-FL) and 6'-sialyllactose (6'-SL) concentrations. Neurodevelopment of infants from mothers providing human milk samples was assessed by Bayley III scales at 6 and 18 months of age. No significant differences were found in 2'-FL or 6'-SL levels among study groups. A positive association was found between 6'-SL human milk concentration and cognitive and motor scale scores in infants at 18 months of age. An association between 2'-FL concentration and motor score at 6 months of age was found although was not significant in Low and High 2'-FL groups, separately. 6'-SL and 2'-FL levels were not influenced by preconceptional maternal body mass index or the development of gestational diabetes mellitus. 6'-SL and 2'-FL levels in human milk were associated with infant cognitive development.

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A Hidden Side of the COVID-19 Pandemic in Children: The Double Burden of Undernutrition & Overnutrition

Publication: Int J Equity Health.

Publish Date: 2021 Jan 22

Authors: Zemrani B, Gehri M, Masserey E, Knob C, Pellaton R

The COVID-19 pandemic has deteriorated key determinants of health and caused major upheavals around the world. Children, although less directly affected by the virus, are paying a heavy price through the indirect effects of the crisis, including poor diet, mental health impact, social isolation, addiction to screens and lack of schooling and health care, particularly among vulnerable groups. This paper is aimed at discussing the potential impact of this pandemic on children's nutrition and lifestyle. Preliminary data from the literature and from our survey show significant disruptions in nutrition and lifestyle habits of children. While undernutrition is expected to worsen in poor countries, obesity rates could increase in middle- and high-income countries especially among precarious groups widening the gap in health and social inequalities. The real impact of the COVID-19 pandemic on children extends well beyond that of a viral infection. This crisis has public health implications that could have life-long consequences on children. It requires effective and targeted measures mainly for vulnerable children and households to guarantee children's basic rights for optimal nutrition, health and development.

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Early Postoperative Nutritional Supplement Utilization is Associated with Reduced Length of Stay in Malnourished Hip Fracture Patients

Publication: Br J Anaesth

Publish Date: 2021 Jan 27

Authors: David G A Williams, Tetsu Ohnuma, Krista L Haines, Vijay Krishnamoorthy, Karthik Raghunathan, Suela Sulo, Bridget A Cassady, Refaat Hegazi, Paul E Wischmeyer

This retrospective cohort study included hip/femur fracture patients undergoing surgery from 2008 to 2018. The study results showed that overall 160,151 hip/femur fracture surgeries were identified with a coded-malnutrition prevalence of 8.7%. Early postoperative nutritional supplementation (by hospital day 1) occurred in 1.9% of all patients and only 4.9% of malnourished patients. Propensity score matching demonstrated that early nutritional supplementation was associated with significantly shorter length of stay (5.8 [6.6] days vs 7.6 [5.8] days; $P < 0.001$) without increasing hospital costs. This study demonstrates that malnutrition is underdiagnosed in hip/femur fracture patients and that nutritional supplementation is under-utilized in this patient population.

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Evaluation of Nutritional Support & In-Hospital Mortality in Patients With Malnutrition

Publication: JAMA Netw Open

Publish Date: 2021 Jan 4

Authors: Nina Kaegi-Braun, Marlena Mueller, Philipp Schuetz, Beat Mueller, Alexander Kutz

This cohort study of 69,934 adult patients with malnutrition in a nationwide Swiss claims database investigated whether there is an association of nutritional support (including dietary advice, oral nutritional supplementation, or enteral and parenteral nutrition)

with in-hospital mortality in routine clinical practice. The results showed that patients receiving nutritional support, compared with those not receiving nutritional support, had a lower in-hospital mortality rate (7.2% vs 8.8%; $P < .001$) and a reduced 30-day readmission rate ($P = .002$). Additionally, patients receiving nutritional support were less frequently discharged to a post-acute care facility, than those not receiving nutritional support (42.2% vs 44.9%; $P < .001$). This study highlights the importance of nutritional support for patients in the hospital with malnutrition to improve outcomes.

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