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The effect of nutritional parameters on the prognosis of childhood interstitial lung diseases

Nagehan Emiralioğlu, Tuğba Ramazlı Gursoy, Matthias Griese, Elias Seidl, Nicolaus Schwerk, Julia Carlsen, Martin Wetzke, Steve Cunningham, Joanna Lange, Katarzyna Krenke, Zsolt Szepefalusi, Florian Stehling, Winfried Baden, Susanne Hämmerling, Silviya-Pera Jerkic, Marijke Proesmans, Nicola Ullmann, Deborah Snijders, Frederik Buchvald, Antonio Moreno Galdo, Nadia Nathan, Ralph Epaud, Andy Bush, Ayse Tana Aslan, Nazan Cobanoglu, Nural Kiper, chILD-EU CRC collaborators

Introduction

- Data on malnutrition and feeding difficulties in childhood interstitial lung diseases (chILD) are scarce.
- There is not enough data on the relationship between nutritional status and pulmonary exacerbations, pulmonary function tests, severity of the disease in chILD.
- Also there is a need for nutritional therapeutic approaches (e.g. Vitamins, supplements, special formula) in chILD.
- The aims of this study are to evaluate malnutrition status in different chILD subgroups and to investigate factors leading to poor nutritional status.

Methods

- Data source from the Kids Lung Register.
- From baseline and follow-up data we analyzed.
 - Nutritional parameters,
 - Severity scores,
 - Treatment modalities,
 - Pulmonary function test data (ppFEV1 and ppFVC)
 - Disease severity (using Fan severity score)
- Malnutrition was defined as body weight/height z-score < -1.0 (for patients < 2 years) and body mass index (BMI) z-score < -1.0 for children > 2 years.

Results

- In 23 countries data of 3334 register visits from 759 children were included.
- 408 (53.8%) of the children were female.

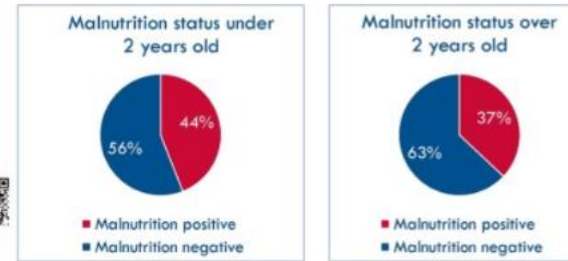


Figure 1. Malnutrition status of children at baseline visit

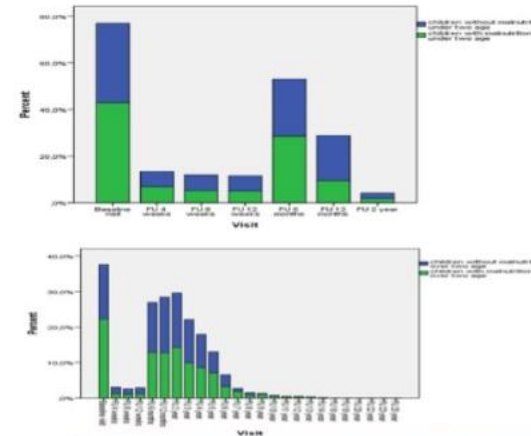


Figure 2. Malnutrition status of children during follow up visits

Results

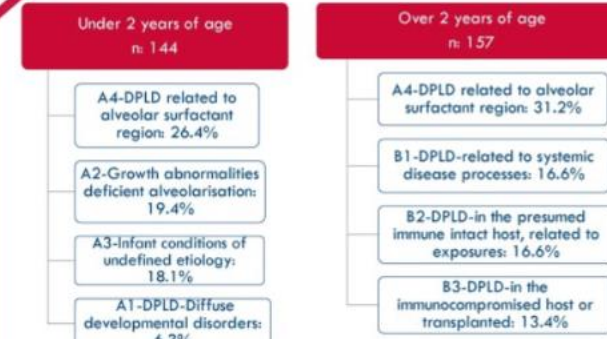


Figure 3. chILD subcategories according to malnutrition status

- Relationship of Malnutrition with Disease Severity
 - Under 2 years of age;**
 - Other comorbid conditions (renal, intestinal, nervous system, thyroid disease) were higher.
 - Disease severity was higher in children with malnutrition ($p < 0.001$).
 - There was a moderate, negative correlation between weight z score and respiratory rate z score ($r: -0.31, p < 0.001$).
 - Over 2 years of age;**
 - Disease severity was higher in children with malnutrition ($p < 0.001$).
 - There was a weak negative correlation between BMI z score and respiratory rate z score ($r: -0.24, p: 0.01$).
- Pulmonary function test results were lower in children with malnutrition.

Conclusions

- Malnutrition is common in chILD and attention should be taken for these patients in their clinical visits.
- chILD subgroup related to alveolar surfactant region has the most common malnutrition rate in our cohort.
- Malnutrition is significantly related with disease severity, respiratory rate z score and pulmonary function tests according to our results.
- Further studies are needed to determine if early nutritional intervention improves the prognosis of patients with chILD.

