Clinically Evident Portal Hypertension (CEPH) is Associated with Low IGF-1 in Children with Chronic Liver Disease

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Background

• Children with chronic liver disease exhibit growth hormone (GH) resistance which is an additional risk factor for sarcopenia and growth failure.

• Low IGF-1 is associated with multiple negative effects including fatigue in other pro-inflammatory states.

• Portal hypertension has not been studied as a risk factor for low IGF-1.

Methods

• Children 3 months – 18 years were recruited from an ambulatory hepatology clinic. Patients were categorized by presence or absence of portal hypertension1.

• Clinical data, nutritional assessment and serum samples for IGF-1 collected.

• Patients with co-morbidities affecting inflammatory state, intestinal barrier function or the GH axis were excluded.

• The PedsQL Multidimensional Fatigue Scale (PedsQL-MF) was completed by parents and children.

• Low IGF-1 defined as Z score <-2. Low mid upper arm circumference (MUAC) defined as Z score <-1.

• Continuous variables between groups were analyzed using Mann Whitney U test.

Results

• Children with CEPH had lower IGF-1 Z-scores compared to those without CEPH (p = 0.003) with median Z scores -2.25 and -0.8 respectively.

• Height and weight Z-scores had no association with IGF-1 Z-score.

• Low MUAC was associated with low IGF-1 Z-scores (p .036).

• Median PedsQL-MF scores from children (63.89) and parent-proxy (75.70) were significantly lower compared to healthy children (83.33, p <.001) and their parent-proxy (88.89, p .002).

Conclusions

• CEPH is associated with lower IGF-1 Z-scores.

• Lower IGF-1 Z-scores are associated with an increased burden of fatigue in chronic liver disease.

• Next steps will include measurement of serum cytokines profiles and evaluation of the relationship between a pro-inflammatory state and IGF-1 Z-scores.

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