

Chronic hypoxemia leads to reduced serum IGF-I levels in cyanotic congenital heart disease

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Cyanotic congenital heart disease in children commonly causes more pronounced growth retardation in comparison with acyanotic congenital heart disease. Chronic hypoxemia has been suggested as the cause of poor growth in these patients, but the relationship between serum IGF-I levels and chronic hypoxemia is unclear. Some studies shows Serum IGF-I concentrations, oxygen saturation and nutritional status were evaluated in patients with cyanotic congenital heart disease, and serum IGF-I levels were compared with a group of 20 well-nourished, age-matched control children to assess the relationship between IGF-I levels and chronic hypoxemia. The nutritional status of each patient was determined by using anthropometric parameters and calorie and protein intake ratios. The patients were divided into malnourished and well-nourished groups (21 and 8 patients, respectively) according to their nutritional status. Serum IGF-I concentrations were measured in the two patient groups and the controls. The malnourished group had the lowest IGF-I levels (48.14 +/- 21.8 ng/ml, $p < 0.05$). However, the well-nourished group's IGF-I levels were significantly lower than the control subjects' despite improved nutritional status (85.5 +/- 30.2 and 107 +/- 19.7 ng/ml, respectively, $p < 0.05$). In addition, they found a positive correlation between serum IGF-I levels and oxygen saturation of the patients ($r = 0.402$, $p < 0.05$). These findings indicate that chronic hypoxemia has a direct or indirect effect to reduce serum IGF-I concentrations and this may be a cause of the increased growth failure in patients with cyanotic congenital heart disease. chronic hypoxia plays a significant role in the pathogenesis of malnutrition and also believe that IGF-1 deficiency seen in CHD patients may be responsible in the etiology of the decrease in left ventricular mass independently from GH.