SUMMARY

Growth failure in children with CHD is a well recognized phenomenon. Descriptive studies before 1980 showed that most of these children exhibit growth failure at birth that persists in to infancy and children before surgical correction. Growth relation as retardation surgery puts these children at increased risk of morbidity post operatively and leads to longer recovery periods. In addition, server growth delay may limit catch-up growth after surgical correction. The aim of this study was to evaluate the role of IGF-1 in congenital heart disease.

This study was conducted on 45 infants & children (29 males & 21 females) with congenital heart disease attending the pediatric cardiology unit in Benha University hospital, over a period of 6 months from April 2010 till Sept 2010, their age ranged from 3 months to 5 years old.

Twenty healthy children of sex & age matched to patients were taken as control group.

The children were divided into 3 groups:

Group (I) : Acyanotic group : 30 patients (16 males and 14 Females) their mean age was (1.67$\pm$1.05) years.

Group (II) : Cyanotic group : 15 patients (10 males and 5 Females) their mean age was (1.76$\pm$0.79) years.

Group (III) : Control group : 20 children (13 males and 7 Females) their mean age was (1.82$\pm$0.70) years.

All the studied groups were subjected to detailed history with emphasis on presence or absence of cyanosis, full clinical examination, anthropometric measures including (weight, height, BMI, head circumference mid arm circumference), imaging technique (echo-cadiography) for diagnosis for patients, and serum IGF-1 was assessed in all patients controls.

In the present work, both cyanotic and acyanotic groups were stunted and underweight with more server affection of cyanotic patients compared to a cyanotic patients and the and controls.

The results of this study revealed that serum IGF-1 level was unrelated to age or sex in the cong. enital hear disease groups as well as control group.

As regard BMI. Our study revealed that there was a statistically high significant difference between both (cyanotic and a cyanotic) groups and the controls ($P< 0.001$).

The present work showed that there was no significant statistical difference between cyanotic and acyanotic groups ($P>0.05$) regarding the head circumference but the difference between both groups and the controls was statistically highly significant ($P<0.001$) .

Our study revealed that there was no significant statistical difference regarding mid arm circumference ($P>0.05$) but the difference between both groups and the controls was highly statistically significant ($P<0.001$) .

Our present work showed that serum IGF-1 level was statistically lower in the group of CHD patients compared to serum IGF-1 level of the controls ($P<0.001$) cyanotic group had less serum IGF-1 concentration than acyanotic group.

The results of this study revealed that there was a significant positive correlation between IGF-1 and (age, height, weight, head circumference) among the cyanotic and the acyanotic groups.

In summation, the present study refers that the relationship between CHO, IGF-1 and growth retardation is well documented.

CONCLUSION

1- Our study further pinpoint the relationship between decreased IGF-1 level and hypoxia in cardiac tissue.

2- Infants with congenital heart disease had lower IGF-1 levels than controls.

3- Cyanotic congenital heart disease in children caused more pronounced growth retardation in comparison with acyanotic congenital heart diseases.

4- We determined that the most important factor on serum IGF-1 levels is cyanosis. For this reason we believe that chronic hypoxia plays a significant role in the pathogenesis of growth failure.

RECOMMENDATIONS

1) Children with CHD have delayed physical growth, therefore prompt diagnosis, effective surgical treatment and support are needed to minimize the effects on children and families.
2) Further research into the exact mechanism for the decrease level of IGF-1 in children with CHD.
3) Further research into the mechanisms of growth failure in CHD from a biochemical level is needed to guide the possible management options.
4) Factors that lead to intrauterine growth retardation for patients with CHD requires further elucidation and represent an important area of research.
5) Further research into the role of recombinant growth hormone to treat those children who continue to exhibit growth delay after surgical correction.