

## Malnutrition in Congenital Heart Disease

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Malnutrition is still a common problem in pediatric practice in India(1). But at present in India, we may not be correct in assuming that all the cases of malnutrition are due to lack of availability of proper diet due to poor socio-economic background. Even though it is an important problem to be addressed by our society, we should not lose sight of the fact that in some cases the malnutrition could be secondary to some medical disease or these diseases may be a contributing factor, one of them being congenital heart disease. It is important to keep this in mind as at present most of the congenital heart diseases can be corrected if diagnosed early and timely intervention is provided. This will result in normalization of their malnourishment early due to decreased caloric requirement, better absorption, reduction in lower respiratory tract infections, etc. Some of the cases of malnutrition may have an underlying heart disease which may be solely responsible or more commonly contribute to malnutrition(2, 3).

Patients with increased pulmonary blood flow and pulmonary hypertension are more prone to develop malnutrition and growth retardation. Associated hypoxia in patient with cyanosis and pulmonary hypertension further increases the problem. Inadequate diet, repeated infection, worm infestation, etc being the other issues. The article written by Vaidyanathan, *et al.*(4) in this issue of *Indian Pediatrics* very aptly emphasizes the need to understand that till the underlying heart disease is corrected, no amount of hyperalimentation is going to improve malnutrition.

In the process of trying to do the same, one may miss the correct time for corrective intervention of the defect. In the present era of expertise in the fields

of pediatric cardiac surgery, intensive care, anesthesia and cardiology, the weight alone is no criteria to reject an infant for corrective intervention. However one has to realize that the baby needs careful assessment whether the heart disease is actually responsible or contributing to the malnutrition or not. Some of the babies may have associated heart disease which may not really be the cause of malnutrition and taking the risk to intervene a baby with inadequate weight may be futile in such a situation.

It is interesting to note that in the article by Vaidyanathan, *et al.*(4) in this issue, degree of desaturation and the cardiac diagnosis in no way affected the nutritional status of the patients which is contrary to the earlier reports(2,5). However they do find a correlation with congestive heart failure as reported by several authors(2,6). They have demonstrated an adverse impact of delayed corrective intervention for the growth potential, which is quite logical. In this article a very important factor of properly timing the corrective intervention has been highlighted. This is extremely important to emphasize that in children with congenital heart disease and congestive heart failure it is useless to attempt aggressive calorie supplementation and wait for adequate weight for corrective intervention. The best approach is to give calorie supplements, appropriate management of congestive heart failure and timely referral for corrective intervention. In the present era, age and weight are no bar for corrective intervention. Timely corrective intervention remains the most important factor for good long term results.

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## Oral Salbutamol is Not Effective in Infants with Bronchiolitis

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Acute viral bronchiolitis remains one of the greatest clinical challenges in pediatric care. Clinicians across the globe are annually inundated, in epidemic proportions, with young infants in varying degrees of respiratory distress. In many countries, bronchiolitis is the leading cause of hospitalization in children under one year of age. No wonder then, that the search for effective interventions has been intensively pursued.

And because these infants usually present with tachypnea, cough and wheeze, they resemble older children with asthma. Thus the use of traditional asthma therapies, such as salbutamol and other beta-agonists, are commonly used in infants with bronchiolitis(1). Nonetheless, meta-analyses demonstrate no consistent benefits from pure beta-agonists(2,3). Mixed alpha and beta-agonists, such as nebulized epinephrine show no benefit in hospitalized patients(4,5) and only short-term benefit in ambulatory patients(6).

In a well-designed, double-blind randomized controlled study being published in this issue of

*Indian Pediatrics*(7), Gupta and colleagues examine the effectiveness of oral salbutamol in infants with mild to moderate respiratory disease secondary to acute viral bronchiolitis. Such infants comprise the vast majority of those affected; while most other studies focus on the minority of infants with moderate to severe respiratory distress, hospitalized infants represent only 2-5% of the affected population. With adequate power to show a two day difference in resolution of illness, Gupta and colleagues demonstrated no clinically relevant difference between infants treated with 0.1 mg/kg of salbutamol three times daily compared to oral placebo.

These findings are consistent with the only other trial of oral salbutamol, conducted by our research team, with similar clinical outcomes(8). Gupta and colleagues appropriately recommend discontinuation of oral salbutamol in this patient population.

Supportive care, including hydration, supplemental oxygen and nasal suctioning remains the