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Abstract from Current Literature

Echocardiographic Parameters of Patent Ductus Arteriosus in Preterm Infants

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Objective: To analyze cardiovascular parameters by echocardiography in preterm infants with patent ductus arteriosus (PDA).

Setting: Tertiary-care pediatric university hospital.

Design: Cross-sectional, hospital-based study.

Participants: 58 preterm infants, gestational age less than 33 weeks.

Measurements: A complete 2-dimension, M-mode, color doppler echocardiography was performed in each preterm infant at approximately 48 hours of life.

Results: Each preterm was categorized into hemodynamically significant PDA (hsPDA) (*n*=17, 29.3%), non-hemodynamically significant PDA (non-hsPDA) (*n* = 12, 20.7%), and no PDA (non-PDA) (*n*=29, 50%).

Gestational age (29.4 ± 1.2 wk) and birth weight (1237 ± 358 g) of infants in hsPDA were significantly lower than those in non-PDA group (30.8 ±1.3 wk, 1543 ± 361 g, *P* =0.001), as compared to those in the non-hsPDA group (29.5 ± 2.3 wk, 1296 ± 462 g). Cardiovascular parameters including left atrium/aorta ratio, left atrium volume index, left ventricular dimensions and volumes, stroke volume, and cardiac output in hs-PDA were significantly greater than those in non-hsPDA and non-PDA. LV systolic and diastolic functions were not significantly different in each group. LV global function in hsPDA (0.34 ± 0.13) was

significantly lower than that in non-PDA (0.45 ± 0.13, *P* = 0.01).

Conclusions: In preterm infants with hsPDA, there was a volume load of the left heart causing increased stroke volume and cardiac output. The hsPDA could be detected by echocardiography even in the first 48 hours. The left atrial volume index may be a better indicator of the volume load of the heart.

Key words: *Diastolic function, Echocardiography, Left ventricular dimension, Patent ductus arteriosus, Preterm, Systolic function*

Breastmilk ghrelin, leptin, and fat levels changing foremilk to hindmilk: is that important for self-control of feeding?

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The aim of this study was to evaluate the changes in the ghrelin, leptin, and fat levels in the foremilk and hindmilk and the possible relationship between these levels with the age and growth of term healthy infants. Sixty-two babies were subdivided (according to their nutrition) into breastfed (BF), formula-fed (FF), and BF plus FF (BF + FF) groups. The total and active ghrelin and tryglyceride levels and the total cholesterol levels in the foremilk and hindmilk were studied at the first and second visits (mean of the second and fifth months, respectively). At both visits, the total and active ghrelin and the total cholesterol levels were lower in the hindmilk than in the foremilk. However, the triglyceride levels were higher in the hindmilk than in the foremilk ($p<0.001$). The leptin levels were also higher in the hindmilk, but this difference was not statistically significant. At the second visit, the mean total foremilk ghrelin ($p<0.01$), leptin ($p<0.05$), tryglyceride ($p<0.001$), and cholesterol ($p<0.01$) levels in the BF group were decreased compared with the levels at the first visit, whereas the active ghrelin levels increased ($p<0.001$). At the second visit, we observed a 3.5% increase in the body mass index in BF infants, a 14.6% increase in FF infants, and an 11.8% increase in BF + FF infants ($p<0.01$). The foremilk leptin levels were lower in the BF + FF group than in the BF group at both visits. In conclusion, at the first and second visits, the decreased ghrelin and increased tryglyceride and leptin levels in the hindmilk might be associated with the important role of self-control when feeding BF infants. The stable content of formulas might be associated with a lack of self-control during feeding and increased nutrition. Changing the breast milk ghrelin, leptin, and fat levels between the foremilk and hindmilk and between the first and second visits might explain the differences in the weight gain patterns of BF and FF infants.

Keywords Breast milk – Self-regulation of feeding – Ghrelin – Leptin – Fat – Growth

Use of deferiprone for iron chelation in patients with transfusion-dependent thalassaemia

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Aim: To conduct a retrospective case analysis of the clinical efficacy and adverse effects of deferiprone in our population.

Methods: All patients with transfusion-dependent thalassaemia at KK Hospital who have been on deferiprone were included in the study. Outcomes measured include the change in ferritin levels and cardiac T2* values during deferiprone therapy, and incidence of side effects.

Results: Thirty-three (47.1%) of the total cohort of 70 patients have been on deferiprone, out of which 26 were on combination therapy with desferrioxamine. Majority of the patients (76%) had stable cardiac iron load during deferiprone therapy, and four patients with moderate to severe cardiac iron load showed improvement. Ten patients (30.3%) had improvement in their ferritin levels. Three patients (9.1%) developed mild neutropenia at 3, 18 and 26 months, respectively, and two patients (6.1%) had agranulocytosis at 4 and 10 months, respectively. Their neutrophil counts improved spontaneously after cessation of deferiprone. Thrombocytopenia developed in 27.3% of the patients and was transient in majority (77.8%) of the patients. Five patients (15.2%) developed arthritis that improved after cessation of deferiprone therapy, and one patient had transient arthralgia that resolved spontaneously. Three patients (9.1%) had nausea and abdominal pain.

Conclusion: Deferiprone effectively reduced or stabilised cardiac iron load in our patients. Thrombocytopenia, arthropathy, neutropenia and agranulocytosis are the most important side effects. It is recommended that patients on deferiprone have their full blood counts monitored weekly for the first year of therapy and subsequently fortnightly as long as they are on deferiprone.

Prevalence of wasting among under 6-month-old infants in developing countries and implications of new case definitions using WHO growth standards: a secondary data analysis

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Objectives To determine wasting prevalence among infants aged under 6 months and describe the effects of new case definitions based on WHO growth standards.

Design Secondary data analysis of demographic and health survey datasets.

Setting 21 developing countries.

Population 15 534 infants under 6 months and 147 694 children aged 6 to under 60 months (median 5072 individuals/country, range 1710–45 398). Wasting was defined as weight-for-height z-score <“2, moderate wasting as “3 to <“2 z-scores, severe wasting as z-score <“3.

Results Using National Center for Health Statistics (NCHS) growth references, the nationwide prevalence of wasting in infant under-6-month ranges from 1.1% to 15% (median 3.7%, IQR 1.8–6.5%; ~3 million wasted infants <6 months worldwide). Prevalence is more than doubled using WHO standards: 2.0–34% (median 15%, IQR 6.2–17%; ~8.5 million wasted infants <6 months worldwide). Prevalence differences using WHO standards are more marked for infants under 6 months than children, with the greatest increase being for severe wasting (indicated by a regression line slope of 3.5 for infants <6 months vs 1.7 for children). Moderate infant-6-month wasting is also greater using WHO, whereas moderate child wasting is 0.9 times the NCHS prevalence.

Conclusions Whether defined by NCHS references or WHO standards, wasting among infants under 6 months is prevalent in many of the developing countries examined in this study. Use of WHO standards to define wasting results in a greater disease burden, particularly for severe wasting. Policy makers, programme managers and clinicians in child health and nutrition programmes should consider resource and risk/benefit implications of changing case definitions.