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## Early detection of cardiac dysfunction after preterm birth by speckle-tracking echocardiography

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**Background:** Preterm infants are at higher risk to suffer from adverse cardiovascular events later in life. However, data on cardiac function and possible interventions is scarce. Therefore, we undertook a sequential analysis of cardiac function after preterm birth by speckle-tracking echocardiography (STE) and compared the results to a healthy control group.

**Methods:** Evaluation of cardiac function of 25 very preterm infants (GA 26-30 weeks) at birth, term and 3 months of corrected age by STE and comparison to 30 healthy term children (1st investigation intrauterine), using longitudinal strain (%), strain rate (1/sec) and tissue velocities (cm/s) in both ventricles in systole and diastole for myocardial performance, and comparison to conventional echocardiography.

**Results:** Very preterm infants exhibited significantly lower left ventricular (LV) strain values (19.9 vs. 22.0%), systolic (5.8 vs. 6.4 cm/s) and diastolic (7.8 vs. 10.6 cm/s) tissue velocities and early diastolic strain-rate values (3.9/s vs. 4.7/s) at 3 months of corrected age compared to healthy controls. There was a trend of lower values even in the right ventricle- though not statistically significant.

**Conclusion:** LV systolic and diastolic dysfunction is present 6 months after very preterm birth and can be identified by STE while conventional echocardiography is not able to detect abnormal myocardial performance at this age. Dysfunction might occur because of premature adaption towards higher systemic afterload and re-modelling of the LV early in life. Therefore, we recommend using STE in early routine follow-up of preterm infants.

### Biography

Ulf Schubert is an Assistant Professor affiliated to the Karolinska University Hospital, Stockholm and belongs to the Department of Cardiology, Internal Medicine (General Medicine), Cardiothoracic Surgery and he published 10 research articles in the research gate. His skills and expertise are in cardiac function, cardiovascular, aorta, echocardiography, and carotid arteries. His research interests mainly focus on cardiology, internal medicine, cardiothoracic surgery and congenital heart disease.

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