

Poster presentation

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Cardiac Magnetic Resonance in pregnant women: supine or left lateral position?

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Introduction

Postural changes can affect cardiac functional parameters in normal pregnancy.

Purpose

The purpose of our study was to evaluate the cardiovascular response to postural changes during pregnancy at 20 and 32 weeks gestation.

Methods

Fourteen healthy pregnant women with a mean (SD) age 30.3 (5.2) years were studied with cardiac MR (CMR) in supine position and after 30 minutes in left lateral (LL) position. Six/14 were in the 20th week gestation; 8/14 were in the 32nd week pregnancy. Heart rate (HR), ejection fraction (EF), end-diastolic volume (EDV), end-systolic volume (ESV), stroke volume (SV) and cardiac output (CO) were compared in both positions. Lateral and supero-inferior left atrial (LA) diameters were measured at the end systole on a four chamber view in both postures.

Results

During supine position HR was 80 ± 13 bpm vs. 73 ± 9 bpm in the LL position (p -value = 0.07). The EF, EDV, SV and CO increased significantly during LL position (10.71%, 18.76%, 29.21% and 18.04% respectively, p -value < 0.05) at 20 and 32 weeks. No significant changes occurred in ESV between supine and LL positions (65.3 ± 16.37 vs. 69.3 ± 18.1 ml, p -value > 0.05). Lateral LA diam-

eter did not vary significantly (35.0 ± 2.9 vs. 39.6 ± 3.6 ml, $p = 0.05$) but supero-inferior LA diameter increased from a mean value of 40.1 ± 5.0 in the supine position to 46.2 ± 4.8 mm in LL position, p -value = 0.003.

Conclusion

In normal pregnant women a change from supine to lateral position has been shown to increase EF, EDV, SV and CO without increase of ESV. This pattern is seen already at 20 weeks gestation, suggesting a diminished preload due to caval vein compression.