

Cardiac axis in the first trimester of gestation

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Objective

To establish the normal range of the cardiac axis in the first trimester of gestation.

Methods

Prospective observational study in hospital Universitario Fundación Jiménez Díaz. We included 2902 single euploid gestations without congenital heart disease who attended the first trimester ultrasound between November 2012 and January 2016. Multiple gestations were excluded and those which were lost to follow up. Ultrasound was performed according to ISUOG protocol, including measurement of the CRL, TN and ductus venosus flow according to FMF protocols. The cardiac axis was evaluated following criteria published by Comstock in 1989 and Shinkovskaya in 2010. The angle is formed by a line dividing the thorax into two halves from the vertebral body to the sternum and another line at the level of the Interventricular septum at the level of the 4 chamber view. In those cases of difficult evaluation, the colour doppler was used to improve the quality of the image.

Results

We consider normal cardiac axis of 48.3° with a standard deviation of 8.7° . The cardiac angle is independent of the gestational age and remains stable throughout the entire first trimester. If we analyse the relationship of the heart axis with other variables used in the first trimester, we do not find any association with TN or DV. Likewise, the heart axis in the first trimester is independent of race, presence of diabetes or the use of assisted reproduction techniques.

Conclusion

Cardiac axis measurement in first trimester ultrasound is technically feasible. The cardiac axis remains stable through the first trimester and is independent of TN and DV.

Media	Desv. Standard	Mediana	Rango	Percentil 1	Percentil 5	Percentil 90	Percentil 99			
48.3°	8.7°	7	9° - 90°	3	1°	6	6°	4°	7	2°