

Introduction: Prenatal ultrasound diagnostic is widely used method to assess the gestational age and count, to judge the viability, to exclude the large morphological development defects and to detect the ultrasound minor markers. The first visualization of the pregnancy is possible from the 12th to 17th day after conception when the gestational sac is visible. The measurements of the gestational sac are usually made by 2D ultrasound but 3D ultrasound provides exact volume measurements of irregular structures. The aim of this study was to measure the volume of the gestational sac in the first trimester of pregnancy, to find the relation between this volume and CRL and afford the dates for the next part of the study. The essential hypothesis is that there can be relation between growth abnormalities of the gestational sac and severe complications of the pregnancy in the sense of loss of the pregnancy, IUGR or chromosomal abnormalities.

Subjects and methods: After CRL measurements were made there was used 3D ultrasound (VOCAL technique) to measure the volumes of 120 chorionic cavities and 110 amniotic cavities of the patients with normal singleton pregnancy. The median CRL was 31, 5 mm that responds to 10+1 weeks. All the measurements were made by single investigator.

Results: 120 volumes of chorionic sacs and 110 volumes of amniotic sacs were measured. There exists a strong positive linear correlation between CRL and volume of the gestational sac. ($r = 0,925$ for chorionic and $0,914$ for amniotic sac). Volume of the gestational sac increases with the increase of CRL.

Conclusion: Three-dimensional (3D) ultrasound is excellent method to measure the volume of irregular structures like gestational sac during the first trimester of pregnancy. Volume of the gestational sac increases linearly during the first trimester of pregnancy. There was suggested in other studies that volumetry of the gestational sac could come into use in diagnostic in the early pregnancy, because the abnormalities in growth of the gestational sac can have a relation with severe complications of pregnancy like miscarriages, IUGR or chromosomal abnormalities. This hypothesis should be confirmed in the next part of this study.