AVSD and abnormalities of the tricuspid valve and ductus venosus examination at 11-13 weeks
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Objective
Atrioventricular septal defect (AVSD) is the most frequent congenital heart defect (CHD) in Down’s syndrome. Tricuspid regurgitation (TR) and abnormal flow through ductus venosus (DV) are well established first trimester ultrasonographic (US) markers, additional to the nuchal translucency (NT), in screening for Trisomy 21. Our aim was to evaluate the association of complete AVSD (cAVSD) with abnormal tricuspid and DV flow.

Methods
Prospective study of all cases of AVSD diagnosed during 1st trimester screening in a mixed population (general population and referred for increased NT and/or CVS). The US examination was performed by FMF accredited sonographers with high experience in first trimester and fetal heart ecocardiography. First trimester screening included evaluation of all US markers for Down's and 4 chambers view (4CV) of the heart. All cases diagnosed as cAVSD were reviewed by an expert in fetal cardiology (PV).

Results
There have been included 28 cases with diagnostic images of complete AVSD. Nineteen cases (71%) were trisomic (14 trisomies 21, 4 trisomies 18 and 1 trisomy 13) and in one was detected a deletion of the region 8p23. 1 by CGH array. In 18/28 (64%) cases atrioventricular regurgitation (AVR) has been detected. AVR was present in 93% of the trisomy 21 cases (13/14). In 19/27 (70%) cases an absent (2) or reverted (17) a-wave of the DV was present (in 1 case DV was not assessed due to its agenesis) with no significant difference between euploid and aneuploid fetuses.

Conclusion
Tricuspid valve assessment has a very high sensibility in detecting trisomy 21 fetuses with cAVSD. Complete AVSD presents a high association with abnormal DV flow independently of fetal karyotype.