First trimester fetal neurosonography: clinical feasibility and diagnostic performance

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**Objective.** To report the clinical feasibility and diagnostic performance of first trimester fetal neurosonography in a low-risk population.

**Materials and Methods.** Prospective study including all fetuses with a low combined screening test scanned at 11-14 weeks of gestation. The aim of this study was to report the rate of visualization of the different fetal intra-cranial structures, as suggested by the ISUOG guidelines for the second trimester fetal neurosonography, at the time of the 11-14 weeks scan. The fetal central nervous system (CNS) structures assessed were interhemispheric fissure, frontal and posterior horns, thalami, third ventricle, peri-callosal artery and corpus callosum, cerebellum and cerebellar vermis.

**Results.** 167 fetuses were included. The interhemispheric fissure was assessed in all cases. Anterior and posterior horns of the cerebral ventricles were clearly differentiated in 98.5% and 98.7% of cases, while third ventricle in 45.2%. The pericallosal artery was visualized in 99.2% of cases while there was a direct visualization of the corpus callosum in only 15% of cases. Fetal cerebellum was clearly identified in 93.5% of cases and cerebellar vermis in 91%.

**Conclusions.** This is the first study exploring the diagnostic performance of first trimester fetal neurosonography at the time of the 11-14 weeks scan. First trimester assessment can identify most of the supra and infratentorial intracranial structures.