THE ACCURACY OF FIRST TRIMESTER ULTRASOUND FOR THE DIAGNOSIS OF SPINA BIFIDA: a systematic review of literature

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OBJECTIVE. To review literature about the efficacy of ultrasound at 11-13 gestational weeks for detection of spina bifida (SB).

MATERIALS. A search in PubMed, EMBASE, Medline, reference lists was performed (January 2009–January 2014) to find articles about the sonographic diagnosis of SB at 11-13 gestational weeks. Key words were: spina bifida, first trimester ultrasound, intracranial translucency (IT), prenatal diagnosis. Inclusion criteria for study selection were: ultrasound performed at 11-13 weeks, first trimester diagnosis of SB performed with absence of IT or biparietal diameter (BPD) below 5th centile, IT assessed with midsagittal scan, SB confirmed by second trimester ultrasound and/or postnatal examination, data reported as proportional rates. Exclusion criteria were: omitting at least one inclusion criteria, case reports, data reported in graphs or percentage. From each article, the detection rate of SB was calculated as number of SB detected at 11-13 weeks divided by the number of SB detected in the second trimester and/or postnatally. The pooled detection rate was compared according to the ultrasound technique (IT vs BPD) with Fisher's test. P<0.05 was considered statistically significant. PRISMA guidelines were followed.

RESULTS. See below

9 articles

44,761 women screened by 11-13 weeks US

standard diagnosis of spina bifida: 187 (prevalence 4:1000)

LIMITATIONS. No direct comparison between the two techniques, no direct visualization of spine.

CONCLUSION. IT can detect up to 53% of SB in the first trimester and appears to be superior to BPD assessments.