Can nuchal volume replace nuchal translucency in first trimester screening of chromosomal defects

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Recent studies found that chromosomal abnormalities occur much more frequently than is generally appreciated. It is estimated that approximately one of 200 newborn infants has some form of chromosomal abnormality.Intrauterine detection of congenital anomalies is of paramount importance for the family and the community. A thickened nuchal translucency (NT) is a powerful marker for chromosomal abnormalities and is also associated with many structural fetal defects. The excellent track record of the first-trimester nuchal evaluation in detecting fetuses with Down syndrome and other defects has cemented this biometric assessment as a standard part of the first trimester sonogram.Nuchal translucency measurement should follow strict guidelines and holding ongoing audit.The major advantages of 3D ultrasound are the ability to obtain ultrasound section which is impossible to be seen on a routine scan, and the ability to perform accurate volume measurements. In addition, 3D anatomical reconstruction of the organs of interest is possibleThe current study used a novel technique of measuring the NV by VOCAL aiming to determine whether nuchal volume can replace nuchal translucency thickness in first trimester screening of chromosomal defects using 3D ultrasound.This prospective study was held at Obstetrics and Gynecology Department, Benha University Hospital, from February, 2010 till November, 2010 on 100 consequent uncomplicated, singleton pregnant females who underwent NT scanning at 11–13 + 6 weeks of gestation by 2D and 3D ultrasound.The present study found that mean the NT measured by 2D was 1.3mm + 0.5. Also, the study found no statistically significant difference between the measurements of CRL, BPD and NTby 2D and those measured on the stored 3D volume data. Suggesting that 3D ultrasound can replace conventional 2D scanning.This study found that the mean NV was 0.66cc. NV was found to be correlated to gestational age (11-13+6 weeks) and NT.The study concluded that NV can replace NT in first trimester chromosomal scan.More studies including larger number of patients are needed to generate a normal standard curve.