3D ultrasound vs Sonohysterography for the diagnosis of uterine anomalies: A prospective blinded study of 1000 consecutive women.

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OBJECTIVE: Sonohysterography (SHG) is widely used for the diagnosis of intrauterine pathology. We investigated, as a prospective blinded study, the accuracy of SHG, compared to three-dimensional ultrasound (3D US),in detecting uterine anomalies.

DESIGN: A prospective blinded study.

MATERIALS AND METHODS: 1000 consecutive women who were referred for SHG because of infertility (n_591), or for the investigation of irregular uterine bleeding or abnormal endometrial appearance (control,n_409), also underwent 3D US for the diagnosis of uterine anomalies. 3D ultrasounds and SHGs were performed by experienced reproductive sonographers.3D ultrasounds were preformed using General Electric (GE) Voluson730 Experts, and the SHGs by GE Logiq 400 Pros. Uterine anomalies were defined by the American Society of Reproductive Medicine criteria. Sensitivity, specificity, positive and negative predictive powers of SHG compared to 3D US were measured. Cohen's Kappa was used to analyze the extent to which the two tests agree, correcting for chance agreement.

RESULTS: 23.9% of women (n_239) were diagnosed by 3D US to haveuterine anomalies. Arcuate uterus was the most frequent anomaly (n_186)and the others were partial (n_ 25), or complete (n_ 20), septated uterus,bicornuate (n_ 2), didelphys (n_ 1), hypoplastic (n_ 1), unicornuate (n_1), and borderline septate/arcuate (n_ 3). The prevalence of anomalies wassignificantly higher in the infertile group (29.8%) compared to the noninfertilegroup (15.4 %; p _ 0.0001). Using the 3D US as the gold standard,the SHG had sensitivity, specificity, positive and negative predictive powers of 61.9%, 97.8%, 92.4%, and 85.8% for the infertile women (Kappa _ 0.618 ; p _ 0.001), and 57.1%, 99.1%, 92.3%, and 92.7% for the non infertile group (Kappa _ 0.655 ; p _ 0.001), respectively.

CONCLUSION: SHG diagnoses most uterine anomalies. When a uterine anomaly is suspected, 3D US should be recommended first. 3D US allows precise recognition of uterine anomalies by visualizing both the uterine cavity and the fundal uterine contour in the coronal plane. 3D US should become the gold standard for diagnosing uterine anomalies, instead of laparoscopy with hysteroscopy, or with a hysterosalpingogram. 3D US may become routine for the investigation of the infertile women