INTRODUCTION:
The sub-fertility is defined as failure to conceive desired pregnancy after 12 months of unprotected intercourse & affects 10 % of married couple. The tubal obstruction by various causes were common causes of subfertility.

METHODS: In a non-randomized, prospective study of 35 women of sub-fertility with suspected tubal dysfunction, various radiological modalities were compared for their capability to demonstrate the tubal patency. SSG and HSG was done in all cases. All sub-fertile women underwent abdominal USG before procedure followed by color Doppler, SSG and HSG.

RESULTS: The tubal patency was correctly indicated by SSG in 80% & HSG 75%. Thus SSG is superior to HSG to see tubal patency as it has no radiation & contrast reaction.

DISCUSSION: Various radiological modalities among them SSG and HSG was done in tertiary health care center to compare the SSG & HSG in the diagnosis of tubal patency in sub-fertile women.

CONCLUSION: Several modalities have been suggested for the diagnosis of suspected tubal obstruction, however SSG is the initial most useful technique to confirm or exclude tubal patency.

KEY WORDS: Tubal patency, SSG, HSG, USG, Color Doppler.

Comparison of Sono-salpingography & X-Ray Hysterosalpingography in the Sub-Fertile Women.

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procedure & now a days has became modalities of choice .The SSG has benefit of free of Ionizing radiation & Contrast reaction. It is easily repeatable, convenient & shows tubal motility, patency as well as used for therapeutic purpose to dislodge the intra-luminal debris, but needs patient full co-operation & experienced radiologist. It has also benefits to see uterine anomalies, endometrial Polyp, Carcinoma, Sub-mucosal fibroid, hematoma & measurement of endometrial thickness. The accuracy of SSG as compared to HSG has 80%.

**History of ultrasonic assessment of the Fallopian tube;**

In 1954 Rubin published the first attempt as inflating the Fallopian tube on trans-abdominal Sonography after intra-cervical injection of fluid.

Richmen and colleagues were first to report on the abdominal Sonographic evaluation of uterus & tubal patency after injecting isotonic solution through special intra-uterine catheter (Harris uterine injector).

Randolph & co-workers used abdominal Sonography for observation of fluid in retro-uterine space after injecting the 200 ml of saline through Rubin canula. The presence of fluid was accepted as tubal patency one or both tube without differentiation of side.

A new transvaginal ultrasonography technique was developed by Deichert & colleagues in 1989. They observed patent tube & its motility by trans-cervical injection of an echogenic ultrasonic contrast fluid through 8F Bladder Catheter.

Tufekci and co-workers have developed an easier technique, where patient does not need anesthesia & can be performed by intra-uterine injection of isotonic saline solution & evaluation of tubal patency directly, named as Trans-vaginal Sono-salpingography. It is physiological, easy to perform, safe, cost effective, non-invasive, non-radiation & more convenient than other conventional method. Now a days this technique is popularly used in sub-fertile women.

**Hypothesis:** In the diagnosis of tubal obstruction, unilateral/ bilateral, SSG is more easy & accurate than any other available procedure.

**METHODS**

In a non- randomized prospective study of 35 women, known or suspected tubal obstruction was carried out in the department of Radiology & imaging at tertiary health care center, Nepal over a period of 2 years who were presented with features of sub-fertility. All patients had USG before procedure to exclude any contraindication. All patients were explained about merit & demerit of the procedure. Consent was obtained before procedure. SSG & HSG were done. Unwilling to participate, unfit for investigations, contraindicated women, Oligo-spermia, Azospermia in their husband, cases were excluded in the study.

To achieve specific objectives both SSG & HSG have been done with 7.5 MHz probe Color Doppler transvaginal ultrasound & 300 mA portable X-Ray. Most of the patient were from rural area & was presented with unable to conceive for Primary or Secondary sub-fertility in the duration of 2-16 years of Marriage age, Youngest was 18 years & oldest 42 years of age. Primary sub-fertility were 88% (women who had never conceived) & 12 % were secondary sub-fertility (Women who didn't conceive 2nd time).

<table>
<thead>
<tr>
<th>Age of Women in years.</th>
<th>No</th>
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<tbody>
<tr>
<td>15-25</td>
<td>9</td>
</tr>
<tr>
<td>25-35</td>
<td>20</td>
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<td>35-45</td>
<td>6</td>
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Accuracy rate of detection of obstruction by various imaging modalities.

<table>
<thead>
<tr>
<th></th>
<th>SSG</th>
<th>HSG</th>
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<tbody>
<tr>
<td>Tubal patency</td>
<td>28(80%)</td>
<td>26(75%)</td>
</tr>
<tr>
<td>Tubal obstruction</td>
<td>7 (20%)</td>
<td>9(25%)</td>
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</tbody>
</table>

**DISCUSSION**

This study was conducted to evaluate the Doppler ultrasonic prediction in sub-fertile Patients with suspected tubal obstruction. They were matched with SSG & HSG in Nepalese Population & correlated with western data & are comparable. There are many other modalities such as Laparoscopic Falloscopy, Hysteroscopy etc. however SSG became modality of choice to declare the tubal patency or obstruction. All cases were participated regularly in 18-42 years of age group. Paired sample test was conducted between SSG & HSG. It showed SSG has higher sensitivity for tubal pathology. In this study low sensitivity in HSG for tubal obstruction may be due to spasm at cornu, intra-luminal debris, motility disorder or technical error, where rate of tubal patency is lower in number. Suspicious or equivocal cases must be confirmed by
Falloscopy. Therefore this study has clearly shown that SSG has higher sensitivity & specificity for diagnosis of tubal obstruction

CONCLUSION

After detailed clinical assessment  Color Doppler SSG &  X-ray HSG was done . The three film in different position were obtained after injecting  5-10 ml of non-ionic contrast agent in HSG & 20-30 ML Isotonic saline solution as a contrast  in color Doppler SSG. Finding of the present study showed that sensitivity, specificity & overall accuracy of SSG to detect tubal obstruction is slight higher than HSG. Therefore SSG,with clinical assessment,can be utilized as a first line of diagnostic approach. It has also advantage in the therapeutic use.

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