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DIAGNOSTIC ACCURACY OF SALINE INFUSION SONOHYSTEROGRAPHY FOR EVALUATION OF UTERINE CAVITY ABNORMALITIES IN PATIENTS WITH AUB.

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ABSTRACT… The objective of this study was to evaluate the diagnostic accuracy of saline infusion hysterosonography for detection of uterine cavity abnormalities using Hysteroscopy as the gold standard. **Study Design:** Analytical Quasi Experimental study. **Setting:** Obstetric and Gynaecology Department Madina Teaching Hospital Faisalabad. **Period:** July 2017 to December 2017. **Materials and Methods:** Sixty patients presented with abnormal uterine bleeding were included in the study. Transvaginal ultrasound, SIS and hysteroscopy performed for evaluation of the uterine cavity for any abnormality. **Results:** SIS helped in detection of intacavitary abnormalities in 39 out of 60 patients indicating sensitivity of 88. 64 % and specificity of 100 % as hysteroscopy confirm the findings in all the patients. The NPV is 76 % and PPV of 100 % taking hysteroscopy as gold standard. The diagnostic accuracy of saline infusion sonography is 91%. **Conclusion:** The addition of SIS to TVS significantly improved the sensitivity and specificity for detecting intracavitary pathology. It can be used as an alternative procedure whenever hysteroscopy is not available.

Key words: Abnormal Uterine Bleeding, Hysteroscopy, Saline Infusion Hysterosonography, Transvaginal ultrasound, Uterine Cavity abnormalities.

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INTRODUCTION

Abnormal uterine bleeding (AUB) is the leading cause for gynecological consultation in reproductive age and even after menopause.[1] Apart from dysfunctional uterine bleeding (DUB), intrauterine pathologies are the leading cause of AUB. More than 40 % of women presented with AUB are diagnosed to have intrauterine abnormalities.[2] The most common intracavitary lesions resulting in AUB are sub mucosal fibroids, endometrial polyps and endometrial hyperplasia.[3]

Different kinds of diagnostic modalities are used for evaluation of intra cavity lesions. The most commonly used modalities are Transvaginal sonography (TVS), Saline infusion sonohysterography (SIS) and hysteroscopy. Literaure suggest that[4] TVS is an important tool but SIS can be considered as primary diagnostic method in the detection of uterine cavity abnormalities in patients with AUB.[5]

Although hysteroscopy help in direct observation of the uterine cavity, limitations may necessitate the use of other more accurate diagnostic modalities such as sonohysterography.[6] SIS has become a valuable diagnostic modality in gynaecology over the last three decades and is now commonly used for thorough evaluation of the lesions in endometrial cavity.[7]

The objective of the study was to determine diagnostic the accuracy of SIS for evaluation of endometrial cavity abnormalities, taking hysteroscopy as the “gold standard”.

MATERIALS AND METHODS

This prospective study was carried out in the department of obstetrics and gynaecology Madina Teaching Hospital affiliated with University Medical and Dental College Faisalabad from July 2017 to December 2017.

The study was approved by the institutional

ethical committee. A detailed history and clinical examination was performed of the patients presenting with menstrual irregularities. Patients with active pelvic infection, genital tract tumors, pregnancy and cervical lesions were excluded from the study. Patients who fulfilled the selection criteria had TVS and saline sonography followed by hysteroscopy.

In premenopausal female SIS was carried out on day 7 - 10 of last menstural period. SIS was performed at any time in postmenopausal patients. No prophylactic antibiotics and analgesia were used. Informed consent was taken before procedure. All cases were performed on the same machine by a single experienced operator.

After aseptic measures, a sterile cusco's speculum was introduced, cervix visualized and Foley's catheter of appropiate size was passed into the uterine cavity and balloon was inflated. After removal of Speculum, saline was infused in the endometrial cavity to minimize the opposition of walls of endometrium. Transvaginal ultrasound was performed, complete sono graphic evaluation of endometrial cavity done. Hysteroscopy was performed within 14 days of Sonography. Normal saline was used as the distention medium. with the insertion of hysteroscope, both endocervical canal and endometrial cavity were visualized. The findings were recorded as normal endometrial cavity, endometrial hyperplasia, polyp and sub mucous fibroids.

Data collection was completed and analyzed by SPSS version 17.
Sensitivity, specificity, PPV and NPV for saline sonography were calculated.

RESULTS

Total number of patients were 60, (n = 41) were premenopausal and (n =19) postmenopausal. In premenopausal women 18 had cyclical HMB and 23 Patients had irregular bleeding. The mean age was 49 years (Table-I).

On TVS, no uterine cavity lesion was detected in (n = 33) 55 % patients. Intra uterine abnormalities were detected in (n = 27) % out of which (n = 10) 16 % had polyps and (n = 5) 8.3 % had sub mucous fibroid and (n= 12) 20 % had endometrial hyperplasia (Table-II).

At SIS (n =21) 35 % patients had no intracavity pathology and (n = 39) % patients were found to have intracavitary abnormalities. Endometrial polyp was seen in 36 % (n = 22), (n =11) 18 % patients had sbmucous myoma and (n= 6) 10 % patients had endometrial hyperplasia (Table-III).

On hysteroscopy (n =16) 26 % patients have normal uterine cavity and (n= 48) had intracavitary pathology including endometrial polyp found in (n= 26) 53 % patients followed by sub mucous myoma in (n = 9) 15 % patients and endometrial hyperplasia in (n= 3) 5 % patients (Table-IV).

SIS helped in detection of intacavitary abnormalities in 39 out of 60 patients indicating sensitivity of 88. 64 % and specificity of 100 % as hysteroscopy confirm the findings in all the patients. The NPV is 76.2 % and PPV of 100 % using hysteroscopy as gold standard. The diagnostic accuracy of saline infusion sonography is 91.67 % (Table-V).

	N	Minimum	Maximum	Mean	Std.
Age	60	42	66	49.68	5.925

Table-I. (Distribution of patients according to age)

	Frequency	Percent
Normal	33	55.0
Polyp	10	16.7
Sub Mucous Fibroid	5	8.3
Endometrial Hyperplasia	12	20.0
Total	60	100.0

Table-II. Finding of TVS

	Frequency	Percent
Normal	21	35.0
Polyp	22	36.7
Sub Mucous Fibroid	11	18.3
Endometrial Hyperplasia	6	10.0
Total	60	100.0

Table-III. Finding of saline hysterosonography

	Frequency	Percent
Normal	16	26.7
Polyp	32	53.3
Sub Mucous Fibroid	9	15.0
Endometrial Hyperplasia	3	5.0
Total	60	100.0

Table-IV. Finding on hysteroscopy

		Hysteroscopy		Total
		Abnormal	Normal	
Saline Hystero-sonography	Abnormal	39	0	39
	Normal	5	16	21
Total		44	16	60

Table-V. Data analysis

Sn = 88.64%
Sp =100%
NPV =76.2%
PPV =100%
Diagnostic accuracy = 91.67%

DISCUSSION

Abnormal uterine bleeding is very common symptom in women of all ages. Various investigation modalities are employed to differentiate between the functional causes and organic causes of AUB such as polyps, uterine fibroids and endometrial hyperplasia. Information that we get about the type of the lesion and location helps in the management decision and the selection of surgical procedures.

The present study determined the diagnostic accuracy of SIS for evaluation of intracavitary lesions considering hysteroscopy as gold standard.

In the current study the sensitivity of the SIS is 88.64 %, specificity is 100 %, NPV of 76 % and PPV of 100 %. One study found the sensitivity of sonohysterography 92 % and specificity 78 %.[8]

Chawla I et al mentioned the sensitivity of 89.1% and specificity of 100 %. NPV of 73.7 % and PPV of 100 %,.[9]

Soares et al mentioned that SIS had 100 % sensitivity, 100 % PPV and 100 % diagnostic accuracy for intracavitary pathology.[10]

Mathew et al[11] concluded that saline infusion sonohysterography is a simple evaluating method with minimal invasiveness and cost and is more accurate than TVS and can be used as a screening tool before hysteroscopy.

Feitosa et al[12] reported the sensitivity, specificity, PPV and NPV of SIS in evaluating uterine cavity lesions were 89.1, 100, 100, and 73.7 % respectively.

The high diagnostic accuracy of SIS has been supported by many recent articles and it has been concluded that SIS can replace DH.[2] It is now accepted that SIS is the reliable method for evaluation of endometrial cavity and after SIS the appropriate treatment can be planned.[13] Kasidag et al in a study determine the sensitivity, specificity, PPV, and NPV to be 93, 56, 86 and 71 % respectively in case of saline sonography.[14] SIS can be opted as first line diagnostic approach in patients with AUB.

CONCLUSION

Sensitivity and specificity for detection of intracavitary lesion is significantly increased when TVS is combined with sonography. It can be considered as an alternative procedure to hysteroscopy. Hysteroscopy can be used only for therapeutic purpose for intrauterine lesions that has diagnosed on sonography or when SIS is not conclusive.

REFRENCES

1. Moschos E, Ashfaq R, McIntireDD, Liriano B, Twickler DM. **Saline infusion sonography endometrial sampling compared with endometrial biopsy in diagnosing endometrial pathology.** Obstet Gynecol. 2009; 113: 881 – 7. [pubmed].

2. De Kroon CD, jansen FW. **Saline infusion sonography in women with abnormal uterine bleeding: An update of recent findings.** Curr Opin Obstet Gynecol. 2006; 18: 653-7. [pub med].

3. Nieuwenhuis LL, Hermans FJ, Bij de Vatte AJM et al. **Three dimensional saline infusion sonography compared to two - dimensional saline infusion sonography for the diagnosis of focal intracavitary lesions.** Cochrane Database Syst Rev. 2017 May 5; 5:CDO11126.

4. Karimzadeh MA, Firouzabadi RD, Goharzad F. **Diagnostic value of saline contrast sonohysterography comparing with hysteroscopy for detecting endometrial abnormalities in women with abnormal uterine bleeding.** Iran J Reprod Med. 2011 summer; 9 (3): 199-202.

5. Luterek K, Szymusik I, Bartkowiak R, Wielgos M. **Sonography in peri- and postmenopausal women with abnormal uterine bleeding or abnormal endometrial appearance.** Nero Endocrinol Lett. 2014; 35 (4):297 – 300.

6. Fatemah Z, Firouzeh A. **Evaluation of intrauterine structural pathology by the three dimensional sonohystergraphyusing an extended imaging method.** International Journal of fertility and sterility. APRIL - JUNE 2013, volume 7, Number 1; pages 1 to 6.

7. Loiacono RM, Trojano G, Del Gaudio N, et al. **Hysteroscopy as a valid tool for endometrial pathology in patients with postmenopausal bleeding or asymptomatic patients with a thickened endometrium: hysteroscopic and histological results.** Gynecol Obstet Invest. 2015; 79 (3): 210–6.

8. Choudry A, Shukar I, Khan S, et al. **Acceptability and accuracy of saline infusion sonohysterography in women with postmenopausal bleeding.** J Coll Physicians Surg Pak 2010 Sep, 20 (9):571-5.

9. Chawla I, Tripathi S, Vohra P, et al. **To evaluate the Accuracy of saline infusion sonohysterography (SIS) for evaluation of uterine cavity abnormalities in patients with abnormal uterine bleeding.** J Obstet Gynaecol India 2014 June; 64 (3): 197- 201.

10. Soares SR, Barbosa dos Reis MM, Camargos AF. **Diagnostic accuracy of sonohysterography, transvaginal sonography, and hysterosalpingography in patients with uterine cavity diseases.** Fertil Steril. 2000; 73: 406- 411.

11. Mathew M, Gowri V, Rizvi SG. **Saline infusion sonohysterography- an effective tool for evaluation of the endometrial cavity with abnormal uterine bleeding.** Acta Obstet Gynecol Scand 2010; 89:140 -142.

12. Feitosa ISMD, Feitosa HN,, Carvalho FHC, et al. **Comparison between transvaginal sonography and sonohysterography in the assessment of patients with abnormal uterine bleeding.** Radiol Bras 2011; 44: 156–162.

13. El – Sherbiny W, El – Mazny A, Abou- Salem N, Mostafa WS. **The diagnostic accuracy of two -vs three dimensional sonohysterography for evaluation of uterine cavity in the reproductive age.** J Minim Invasive Gynecol. 2015 Jan; 22(1):127- 31.

14. Seshadri S, El – Toukhy T, Douiri A, Jayaparkasan K, Khalaf Y. **Diagnostic accuracy of saline infusion sonography in the evaluation of uterine cavity abnormalities prior to assisted reproductive techniques: A systematic review and meta analyses.** Hum Reprod Update.2015Mar – Apr; 21(2):262- 74.

AUTHORSHIP AND CONTRIBUTION DECLARATION

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1	Humaira Zafar	Data collection and Paper writing.	
2	Mubashra Naz	Procedure Performance.	
3	Umber Fatima	Statistical analysis.	