



INTER-OBSERVER VARIABILITY OF RADIOLOGISTS AND GYNECOLOGISTS IN HYSTEOSALPINGOGRAM EVALUATION

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OBJECTIVE:

To evaluate and compare the interpretation of HSG
by radiologists and clinicians.

OBJECTIVE:

- The differences between observers of each group
- The compatibility of the observers in each group
- Comparison of the groups (clinicians with radiologists) for consistency in their interpretations

METHOD:

- 116 HSG pictures were viewed at computer monitor
- 2 clinicians and 2 radiologists, 35-43 years old, fulfilled 5 years in their specialty,
- Evaluation within a standard framework consisted of several questions for diagnosis of uterine and tubal disease.

Questions	0	1
1. Contour of uterine cavity?	regular	irregular
2. T-shaped uterus?	not present	present
3. Arcuate Uterus?	not present	present
4. Uterus didelphis?	not present	present
5. Contrast material filling of the right fallopian tube?	not present	present
6. Passage of the contrast material to the peritone on the right side?	not present	present
7. Hydrosalpinx on the right?	not present	present
8. Contrast material filling of the left fallopian tube?	not present	present
9. Passage of the contrast material to the peritone on the left side?	not present	present
10. Hydrosalpinx on the left?	not present	present
11. Uterine deviation?	not present	present
12. Filling defect with contrast material in the uterine cavity?	not present	present

Questions replied by the observers during evaluation of HSG films

STATISTICAL ANALYSIS

- SPSS for Windows 15.0
- MedCalc 12.0 computer programme and
- Comparison of proportions were analyzed with MedCalc 12.0
- Relation between the answers McNemar test
- interobserver agreement for categorical variables, the kappa (κ) statistic
- For statistical significance, p value was considered as ≤ 0.05 .

RESULTS-1

- While there were statistically significant difference between the clinicians in interpreting uterine contour, tubal filling on the right, passage to the peritone on both sides, uterine deviation and uterine filling defect (the questions numbered 1,5,6,9,11, and 12)
- there was not significant difference about the questions numbered 2,3,4,7,8 and 10).



RESULTS-2

- There were not significant differences between the interpretations of radiologists except the presence of arcuate uterus (question 3) (McNemar $p>0.05$).

RESULTS-3

- 2 clinicians were significantly compatible with each other in answering all questions except the question 1 and 7 (Kappa $p < 0.05$).
- 2 radiologists were significantly compatible with each other in all questions (Kappa $p < 0.05$).

COMPARISON OF CLINICIANS WITH RADIOLOGISTS FOR EVALUATION OF HSG

Reader	Nb. (%)					
	0 (not present or normal)	P	1 (disagreement)	P	2 (present or abnormal)	P
1. Contour of uterine cavity						
Clinicians	51 (%44)	0.00253	49 (%42)	0.0055	16 (%14)	<0.0001
Radiologists	34 (%29)		28 (%24)		54 (%47)	
2. T-shaped ?						
Clinicians	101 (%87)	>0.05	12 (%10)	>0.05	3 (%3)	>0.05
Radiologists	109(%94)		3 (%3)		4 (%4)	
3. Arcuate Uterus ?						
Clinicians	94 (%81)	>0.05	14 (%12)	>0.05	8 (%7)	>0.05
Radiologists	80 (%69)		13 (%11)		23 (%20)	

COMPARISON OF CLINICIANS WITH RADIOLOGISTS FOR EVALUATION OF HSG

Reader	Nb. (%)					
	0 (not present or normal)	P	1 (disagreement)	P	2 (present or abnormal)	P
4. Uterus didelphis ?						
Clinicians	112 (%96)	>0.05	3 (%3)	>0.05	1 (%1)	>0.05
Radiologists	115 (%99)		0		1 (%1)	
5. Tubal filling on the right ?						
Clinicians	5 (%4)	>0.05	9 (%8)	>0.05	102 (%88)	>0.05
Radiologists	3 (%3)		6 (%5)		107 (%92)	
6. Passage to the periton on the right ?						
Clinicians	7 (%6)	>0.05	15 (%13)	0.0034	94 (%81)	0.0449
Radiologists	9 (%7)		2 (%2)		105 (%91)	

COMPARISON OF CLINICIANS WITH RADIOLOGISTS FOR EVALUATION OF HSG

Reader	Nb. (%)					
	0 (not present or normal)	P	1 (disagreement)	P	2 (present or abnormal)	P
7. Hydrosalpinx on the right ?						
Clinicians	111 (%96)	>0.05	5 (%4)	>0.05	0 (%0)	>0.05
Radiologists	104 (%90)		10 (%8)		2 (%2)	
8. Tubal filling on the left ?						
Clinicians	5 (%4)	>0.05	6 (%5)	>0.05	105 (%91)	>0.05
Radiologists	4 (%3)		8 (%7)		102 (%90)	
9. Passage to the periton on the left ?						
Clinicians	7 (%6)	>0.05	24 (%21)	0.0039	85 (%73)	0.022
Radiologists	9 (%7)		9 (%7)		98 (%86)	

COMPARISON OF CLINICIANS WITH RADIOLOGISTS FOR EVALUATION OF HSG

Reader	Nb. (%)					
	0 (not present or normal)	P	1 (disagreement)	P	2 (present or abnormal)	P
10. Hydrosalpinx on the left ?						
Clinicians	108 (%93)	>0.05	6 (%5)	>0.05	2 (%2)	>0.05
Radiologists	106 (%92)		6 (%5)		4 (%3)	
11. Uterine deviation						
Clinicians	25 (%22)	< 0.0001	30 (%26)	0.0012	61 (% 52)	< 0.0001
Radiologists	81 (%70)		11 (% 9)		24 (% 21)	
12. Uterine filling defect ?						
Clinicians	72 (%62)	>0.05	32 (%28)	0.0244	12 (%10)	0.0207
Radiologists	73 (%63)		18 (%15)		25 (%22)	

RESULTS-4

- The highest number of comment differences and disagreements between clinicians and radiologists were revealed in the contour of uterine cavity and uterine deviation.

RESULTS-5

- Comments about uterine anomalies such as T-shaped, arcuate uterus, and didelphis were similar between the groups ($p>0.05$).

RESULTS-6

- Although there were significant differences between comments for bilateral tubal contrast passage to the peritone,
- Ratios about hydrosalpinx on both sides were similar.

RESULTS-7

- Uterine filling defect; discordance was higher within the clinicians (%28 vs. %15, $p=0.0244$)
- Concordance was higher between 2 radiologists than that between the clinicians (%22 vs. %10, $p= 0.0207$).

Reliability of clinicians versus radiologists for detecting abnormalities on hysterosalpingogram films

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Objective: To evaluate the consistency of the identification of abnormal findings on hysterosalpingogram (HSG) and compare the reliability of clinicians to that of radiologists.

Design: Evaluation of reliability of diagnostic test.

Patient(s): Women undergoing evaluation for infertility.

Intervention(s): Retrospective review of 50 HSG films by three reproductive endocrinologists and three radiologists. Each film was reread 30 days later in a blinded fashion.

Main Outcome Measure(s): The consistency of each individual reader, the reliability of detecting specific abnormalities, and the consistency of clinicians compared with radiologists was evaluated with a kappa (K) statistic and interclass correlation coefficient (ICC).

Result(s): Average intrareader reliability was high for the detection of normal uterus, normal tubes, and tubal obstruction and low for the detection of hydrosalpinx, uterine adhesions, and pelvic adhesions. Inter-reader reliability was high in the detection of normal uterine contour, normal tubal patency, and uterine filling defect and lower for the detection of a hydrosalpinx. The reliability of detecting pelvic adhesion or salpingitis isthmica nodosa was poor.

Conclusion(s): Intrareader reliability was generally good, especially for the detection of normal findings. Agreement among different readers is lower in detecting rare outcomes such as hydrosalpinx and pelvic adhesion and salpingitis isthmica nodosa. Clinicians more reliably diagnose hydrosalpinx and tubal obstruction, while radiologists more reliably detect the more subtle findings of salpingitis isthmica nodosa or uterine adhesions. (Fertil Steril® 2002;78:614–8. ©2002 by American Society for Reproductive Medicine.)

CONCLUSION:

- Gynecologists have more inter-observer variability than radiologists in hysterosalpingography evaluation.
- Both clinicians and radiologists were compatible within themselves.
- Compatibility of radiologists was higher than that of clinicians.
- Better designed studies are needed in order to confirm the variability of HSG reports and to answer the question of

“who should read HSGs of infertile women?”.

Thank you for your attendance.

