Application of the Ianieri Hysteroscopic Risk Scoring System for Diagnosing Endometrial Hyperplasia and Carcinoma among Filipino Women who Underwent Hysteroscopy for Abnormal Uterine Bleeding and Thickened Endometrium in a Tertiary Hospital*

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Objective: To determine the diagnostic accuracy of the Ianieri Hysteroscopic Risk scoring system (IHRSS) in the diagnosis of endometrial hyperplasia and endometrial carcinoma among Filipino women who underwent hysteroscopy for abnormal uterine bleeding and thickened endometrium in a tertiary hospital
Patients and Methods: This is a cross-sectional study (chart review) of patients who underwent hysteroscopy for abnormal uterine bleeding and thickened endometrium in a tertiary hospital from Aprill 2015-December 2017. Hysteroscopic videos were viewed and scored according to the Ianieri Hysteroscopic Risk Scoring System (IHRSS) and compared to histopathologic reports. Sensitivity, specificity, Positive and Negative Predictive Values were computed for 4 categories: 1) Normal Endometrium (NE); 2) Non-Atypical Hyperplasia (EH); 3) Atypical Hyperplasia (AEH); and 4) Endometrial Carcinoma (EC).
Results: This paper showed showed a sensitivity and specificity of 94.6% and 82.5% for NE; 66.7% and 98.4% for EH; 100% and 98.4% for AEH; and 100% and 100% for EC. The positive predictive values and negative predictive values were 96.5% and 75% for NE, 63.6% and 96.5% for EH, 57.4% and 100% for AEH, and 100% and 100% for EC.
Conclusion: The IHRSS showed good diagnostic accuracy in diagnosing endometrial carcinoma and hyperplasia among patients who presented with abnormal uterine bleeding. This may prove to be a good diagnostic tool for hysteroscopists and may aid in intraoperative clinical and surgical judgment.

Keywords: hysteroscopy, hysteroscopic risk scoring system, endometrial hyperplasia, endometrial carcinoma

Introduction

Approximately 70% of women with abnormal uterine bleeding are diagnosed with benign findings and 15% are diagnosed with carcinoma. The remaining 15% receive a diagnosis of endometrial hyperplasia (EH), which includes a broad range of lesions, from mild, reversible proliferations to the immediate precursors of carcinoma.

Endometrial cancer is the most common gynecologic malignancy in developed countries. In developing countries, it is the second most common gynecologic malignancy after cervical cancer. The incidence rate starts rising steeply at

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age 40 and continues to increase with increasing age. For women 40 through age 74 years, the incidence is 5.5 per 100,000 and mortality rate is 1.5 per 100,000. Approximately 2.8 percent of women will be diagnosed with endometrial cancer at some point during their lifetime, based on 2011-2013 data. In the 2010, GLOBOCAN has estimated 1760 new cases of uterine cancer, with a mortality of 796 for that same year.[1]

Diagnosis of endometrial hyperplasia raise three issues. First, the low interobserver reproducibility--less than 50% in almost all studies-hinders the ability of WHO-based classification to effectively guide clinical management. Second, approximately 50% of women diagnosed with atypical hyperplasia have concurrent carcinoma. Not surprisingly, most women with atypical hyperplasia undergo hysterectomy as primary treatment, but non-surgical management can be effective. Third, data on progression risks to endometrial carcinoma for women with endometrial hyperplasia who retain their uterus are extremely limited. Until recently, few studies directly attempted to estimate these progression risks In the 20 years after the diagnosis of EH, less than 5% of women with non-atypical EH progress to carcinoma, whereas almost 30% of women with AH were diagnosed with endometrial carcinoma. These data highlight priority areas for future research, such as increasing the diagnostic reproducibility of endometrial hyperplasia, improving the discrimination between atypical hyperplasia and carcinoma.[3]

Through hysteroscopy, the visual assessment of the endometrial cavity, coupled with targeted tissue collection, improves the accuracy of blind sampling procedures in the diagnosis of submucosal fibroids, polyps, focal hyperplasias or carcinomas, and endometrial atrophy. The sensitivity and the positive predictive value of the hysteroscopic view to detect endometrial hyperplasia have been reported as low, mainly because of the unreliable visual criteria currently used for this diagnosis. With regard to hysteroscopic diagnostic performance for endometrial lesions, the majority of authors agree that hysteroscopy is associated with good accuracy for the diagnosis of clearly malignant lesions but only moderate accuracy for hyperplasia.[4] Furthermore, the diagnostic accuracy of hysteroscopy may vary according to the menopausal status and the experience of the physician performing the examination. Hysteroscopy is a subjective diagnostic test; its result depends on the experience, the knowledge and the capability of the performing physician.[5]

Ianieri, et al. in their study, *A New Hysteroscopic Risk Scoring System for Diagnosing Endometrial Hyperplasia and Adenocarcinoma*, helped shed some light on this dilemma. They developed a new risk scoring system using hysteroscopic morphologic characteristics in an effort to develop a diagnostic tool to differentiate between: 1) normal endometrium; 2) endometrial hyperplasia (nonatypical and atypical) and; 3) endometrial carcinoma.

The authors retrospectively evaluated all videos of diagnostic hysteroscopies performed before endometrial biopsies to note endometrial morphologic parameters suggestive of pathology. The videos were evaluated for the presence of the 14 following morphologic characteristics: 1) Localized endometrial thickening, 2) Widespread and irregular endometrial thickening, 3) Polypoid endometrial aspect, 4) Presence of a singular endometrial polyp, 5) Presence of multiple endometrial polyps, 6) Irregular aspect of the polyp, 7) Dilated glandular orifices, 8) Endometrial cysts, 9) Irregular endometrial color, 10) Atypical vessels, 11) Easy bleeding of endometrial neoplasms, 12) Crumbling of the endometrial neoplasms, 13) Growth of cerebroid and arborescent aspects, and 14) Hematometra. These variables were chosen, considering the parameters reported in the literature, as the main prognostic indicators of hyperplasia or endometrial carcinoma.[2]

Data obtained from the hysteroscopic reports were then compared to the histologic results and thereafter subdividing them into 4 diagnostic categories: normal endometrium (NE), endometrial hyperplasia without atypia (EH), complex atypical endometrial hyperplasia (AEH), and EC. A descriptive analysis for all hysteroscopic morphologic parameters, menopausal state, the presence of AUB, and patients' age (the only variable in which the analysis of variance test was

used) was performed. Frequency of the morphologic and anamnestic variables examined was evaluated. Any statistically significant difference ($p < .05$) between the different variables and each of the 4 diagnostic categories was then calculated with the chi-square test. The principal meaningful variables from a statistical point of view or according to what was indicated in the literature were then selected, and these variables were then inserted in an ordinal multivariate analysis. To create the scoring system, all nonmorphologic parameters, such as menopausal status, AUB and hematometra, nonstatistically significant variables (p , .05), "easy bleeding of the endometrial neoplasm", and parameters with a low chi-square test. were excluded because it was too subjective to be reproducible. A points system was then constructed using the beta coefficient obtained from multivariate analysis, dividing each of the values by the least prominent and multiplying it by 2 and rounding it off with the closest number. Once the scoring system was obtained, points were calculated for each patient and, maintaining the subdivision in the corresponding diagnostic category, the average, median, and quarters were calculated. Therefore, 4 groups of points were created, considering the intervals between the 25th and 75th percentile of each of the 4 histologic categories (NE, EH, AEH, and EC).[2] The derived risk scoring system is shown below, using the 8 variables that at the end of the analysis showed statistical significance, as shown in Table 1.

Table 1. Ianieri Hysteroscopic Risk Scoring System (IHRSS).

Morphology	Score
Atypical vessels	7
Widespread and irregular endometrial thickening	2
Dilated glandular orifices	2
Crumbling of the endometrial neoplasm	6
Multiple endometrial polyps	2
Irregular aspect of the polyp	3
Growth of cerebroid and arborescent aspect	14
Irregular endometrial color	4

From this, a practical score was obtained to allocate to each of the variables. The scoring system started at 0 and reached a maximum value of 40. The points calculation for every patient, using the scores garnered, were used to obtain 4 intervals. The scores for the 4 different diagnostic categories are shown in Table 2.

Table 2. Ianieri Hysteroscopic Risk Scoring System (IHRSS) Interpretation

Score	Interpretation
0-2	Normal Endometrium
>2-7	Non-atypical hyperplasia
>7-16	Atypical hyperplasia
>16	Endometrial carcinoma

Sensitivity, specificity, positive predictive values (PPVs), and negative predictive values (NPVs) of the scoring system for each of these were then calculated. The scoring system showed a sensitivity and specificity of 71.1% and 80%, 48.7% and 82.5%, 63.3% and 90.4%, and 95.4% and 98.2% regarding NE, EH, AEH, and EC, respectively. The positive predictive values and negative predictive values, respectively, were 76.8% and 80% for NE, 62% and 73.5% for EH, 32.7% and 97% for AEH, and 85.7% and 99.5% for EC. The proposed scoring system showed good diagnostic performance, especially in relation to endometrial cancer.[2]

The authors have concluded that the proposed scoring system showed good diagnostic performance, especially in relation to endometrial cancer, and may represent a useful diagnostic tool, mainly for operators with less experience.[2]

The objective of this study is to determine the diagnostic accuracy of the Ianieri Hysteroscopic Risk scoring system (IHRSS) in the diagnosis of endometrial hyperplasia and endometrial carcinoma among Filipino women who underwent hysteroscopy for abnormal uterine bleeding and thickened endometrium in a tertiary hospital.

Patients and Methods

This is a chart review of all patients who underwent hysteroscopy from April 2015 to December 2017 in a tertiary hospital. All hysteroscopy videos were reviewed and scored according to the scoring system developed by Ianieri et al (2016). Permission and correspondence was obtained from Ianieri thru email. The protocol was technically reviewed and improved by the Section of Reproductive Medicine and Research Committee of the Department of Obstetrics and Gynecology and approved by the Institutional Scientific Review Committee (ISRC) & Institutional Ethics Review Committee (IERC) of the same institution. Once approved, a list of all subjects were taken from the monthly tabulated census from the section database. All patients who underwent hysteroscopy for abnormal uterine bleeding and thickened endometrium, except for the following : 1) Patients with no stored hysteroscopic video; 2) Patients previously diagnosed with hyperplasia and malignancy, who underwent medical management, and is for surveillance (repeat hysteroscopy); 3) Patients without histopathologic report; 4) Patients with pregnancy-related bleeding; 5) Patients who underwent hysteroscopy for infertility work-up and were otherwise asymptomatic.

Interobserver reliability testing of the Ianieri Hysteroscopic Risk scoring system was done with 3 observers consisting of 1 consultant and 2 senior fellows of the section, and yielded 0.999 reliability coefficient. Intraobserver reliability testing of the Ianieri Hysteroscopic Risk scoring system was done with 3 observations for 1 observer and yielded 0.999 reliablilty coefficient.

Each patient and corresponding hysteroscopic video was assigned a three-digit number in lieu of patient identifiers. Simple randomized sampling was employed to choose 245 numbers. (Sample size was calculated based on sensitivity of the risk scoring system in the diagnosis of adenocarcinoma and hyperplasia assumed to be 85.7% (Ianieri, 2016). With a maximum allowable error of 5% and a reliability of 90%, sample size calculated is 132. Dividing the value by the prevalence of adenocarcinoma and hyperplasia at 54% (Ianieri, 2016), final sample size computed is 245.

The chosen hysteroscopic videos were viewed by the principal investigator and the morphologic characteristics were scored according to the Ianieri hysteroscopic risk scoring system(Table 1). The result of histopathologic reports were unknown to the investigator. The medical records (particularly histopathologic and ultrasound results) were retrieved after all the videos have been reviewed and scored. The scores obtained were compared with the final histopathologic report.

Results

A total of 245 patients who underwent hysteroscopy between April 2015 and December 2017 were included in the analysis. Table 3 shows the demographic profile of the patients included in the study.

The mean age of the patients in this study was 43.6. with 43.3% of patients at above 45 years of age. The mean body mass index was 25.4, which is in the pre-obese classification. It is noteworthy that 34.3% of the patients were in the pre-obese classification, garnering the highest percentage of the Asian BMI classifications. Parous and nulliparous patients had almost the same prevalence, at 43.7% and 56.3% respectively. Diabetes mellitus was present in 9.4% of patients in this study group. Out of these patients, 205 had normal histopathologic results, 15 had endometrial carcinoma, 2 had atypical endometrial hyperplasia, and 23 patients had non-atypical endometrial hyperplasia.

Table 4 shows crosstabulation between the histologic morphologic characteristics and histopathologic findings. Multiple endometrial polyps was the most common finding for those with histopathologic findings of normal endometrium (NE), followed by widespread and irregular endometrial thickening. For non-atypical endometrial hyperplasia (EH), widespread and irregulat endometrial thickening & dilated glandular orifice appeared more commonly in the hysteroscopic findings (60.9% and 52.2% respectively). Atypical hyperplasia (AEH) had widespread and irregular

Table 3. Demographic profile of patients.

Variables	n	%	Mean ± SD
Age			43.6 ± 11.95
(1) 18-35	64	26.1%	
(2) 36-45	75	30.6%	
(3)>45	106	43.3%	
Parity			
(1) Nulliparous (No pregnancy reaching at least 20 weeks)	107	43.7%	
(2) Parous (one or more preganancies reaching at least 20 weeks)	138	56.3%	
Presence of Diabetes			
(1) Present	23	9.4%	
(2) Absent	221	90.6%	
Body Mass Index (kg/m^2)			25.4 ± 4.32
(1) <=18.5 (Underweight)	6	2.4%	
(2) 18.5-22.99 (Normal)	66	26.9%	
(3) 23.24.99 (Overweight)	52	21.2%	
(4) 25.0-29.99 (Pre-Obese)	84	34.3%	
(5) >30 (Obese)	37	15.1%	
Ultrasound Report			
(1) Thin/Secretory/Proliferatve Endometrium (Normal)	14	5.7%	
(2) Thickened Endometrium	114	46.5%	
(3) Endometrial Polyp	112	45.7%	
(4) Myoma	5	2.0%	
Hysteroscopic Score			
(1) 0-2 Normal Endometrium	201	82%	
(2) 2.01-7 Non-atypical Hyperplasia	24	9.8%	
(3) Atypical Hyperplasia	10	4.1%	
(4) Endometrial Carcinoma	10	4.1%	
Histopathologic Report			
(1) Normal Endometrium	205	83.7%	
(2) Non Atypical Hyperplasia	23	9.4%	
(3) Atypical Hyperplasia	2	1.2%	
(4) Endometrial Carcinoma	15	6.1%	

Table 4. Descriptive analysis of the hysteroscopic morphologic parameters cross-referenced with histopathologic results.

Variables	Diagnostic Categories				
	NE n(%)	EH n(%)	AEH n(%)	EC n(%)	p value
Atypical vessels	3 (1.5%)	2 (8.7%)	1 (50%)	5 (33%)	<.005
Widespread and irregular endometrial thickening	39 (19%)	14 (60.9%)	2 (100%)	7 (46.7%)	<.005
Dilated glandular orifices	3 (1.5%)	12 (52.2%)	2 (100%)	6 (40%)	<.005
Crumbling of endometrial neoplasm	2 (1.0%)	0 (0%)	0 (0%)	7 (46.7%)	<.005
Multiple endometrial polyps	96 (46.8%)	6 (26.1%)	2 (100%)	6 (40%)	.102
Irregular aspect of the polyp	3 (1.5%)	4 (17.4%)	0 (0%)	5 (33%)	<.005
Growth of cerebroid and arboescent aspects	1 (0.5%)	0 (0%)	0 (0%)	8 (53.3%)	<.005
Irregular endometrial color	2 (1%)	0 (0%)	0 (0%)	3 (20%)	<.005

endometrial thickening, dilated glandular orifices, and multiple endometrial polyps as its hyteroscopic manifestations, while for Endometrial carcinoma (EC) the most significant and common hysteroscopic finding was growth of cerebroid and arborescent aspects followed by crumbling of endometrial neoplasm, and widespread and irregular endometrial thickening. Irregular endometrial color appeared least frequently among all the hysteroscopic characteristics (seen in only 5/245 patients examined).

Table 5 shows that of the 245 subjects included, 205 (83.67%) presented with an Normal endometrium (NE) histopathologic result (Normal, proliferative/secretory/ atrophic endometrium, or endometrial polyp). 23 (9.38%) patients were histopathologically diagnosed with Non-atypical endometrial hyperplasia (EH). Only 2 patients(0.8%) had a diagnosis of Atypical endometrial hyperplasia (AEH) and 15 patients (6.1%) had a histopathologic diagnosis of Endometrial carcinoma (EC). Majority of the patients with NE on hysteroscopic scoring had normal histopathologic diagnosis (94.6%) and none of the patients with NE diagnosis had a hysteroscopic score interpretation of endometrial carcinoma. For those with EH on histopathologic result, 14 (60%) were correctly diagnosed thru the scoring system, 7 (30.4%) were scored as NE, and 2(8.7%) were scored as AEH. For AEH histopath diagnosis, 1 was correctly scored thru the scoring system while the other one was scored as EH. Finally, for EC histopath diagnosis, 10 (66.7%) were correctly diagnosed thru the scoring system, while 4 (26.7%)were scored as AEH and 1(6.7%) was scored as EH.

Using this dichotomous table comparing NE and and EH+AEH,+EC, we can compute for the diagnostic accuracy of the scoring system on Normal endometrium with the results as follows: sensitivity of 94.6%, specificity of 82.5% PPV of 96.5% and NPV of 75%.

Using this dichotomous table comparing EH and NE, we can compute for the diagnostic accuracy of the scoring system on Endometrial hyperplasia with the results as follows: sensitivity of 66.7%, specificity of 98.4% PPV of 63.6% and NPV of 96.5%

Table 5. Concordance of IHRSS interpretation with histopathologic result.

Hysteroscopic Score Interpretation	Histopathologic Result			
	Normal Endometrium NE(%)	Non atypical Endometrial Hyperplasia EH (%)	Atypical Hyperplasia AEH (%)	Endometrial Carcinoma EC (%)
NE	194 (94.6%)	7 (30.4%)	0 (0%)	0 (0%)
EH	8 (3.9%)	14 (60.9%)	1 (50%)	1 (6.7%)
AEH	3 (1.5%)	2 (8.7%)	1 (50%)	4 (26.7%)
EC	0 (0%)	0 (0%)	0 (0%)	10 (66.7%)
TOTAL	205	23	2	15

Table 6. Accuracy (Sensitivity & Sensitivity) of the ianieri hysteroscopic risk scoring system in the diagnosis of normal endometrium.

Hysteroscopic Score Interpretation	Histopathologic Result		Total
	NE	EH+AEH+EC	
NE	194	7	201
EH+AEH+EC	11	33	44
TOTAL	205	40	245

Using this dichotomous table comparing AEH and NE, we can compute for the diagnostic accuracy of the scoring system on Atypical Endometrial hyperplasia with the results as follows: sensitivity of 100%, specificity of 98.4% PPV of 57.4% and NPV of 100%

Using this dichotomous table comparing EC and NE, we can compute for the diagnostic accuracy of the scoring system on Endometrial carcinoma with the results as follows: sensitivity of 100%, specificity of 100% PPV of 100% and NPV of 100%.

Discussion

The mean age of the patients in this study was 43.6. with 43.3% of patients at above 45 years of age. This finding was similar to that of Rahimi, with a mean age was 48.6 with SD of +/-11.7 and 30.9% above 45 years old, which represents that a significant amount of patients who are symptomatic are in the perimenopausal age. The mean BMI for this study was 25.4, as compared to 29.5-30.2 in the other studies. However, this study used the BMI classification for Asians, whereas the previous studies used the WHO classification. Hence, in our study, many patients fell into the pre-obese classification, whereas in the other studies, the patients fell into the obese classification.[4,9,10] These findings may reflect the age and habitus of women who commonly present with abnormal uterine bleeding or thickening and are at increased for endometrial pathologies. The incidence of diabetes however was significantly lower for this study population (9.4%) as compared to other papers

Table 7. Accuracy (Sensitivity & Sensitivity) of the ianieri hysteroscopic risk scoring system in the diagnosis of endometrial hyperplasia (EH).

Hysteroscopic Score Interpretation -=	Histopathologic Result EH	NE	Total
EH	14	8	22
NE	7	194	201
TOTAL	21	202	223

Table 8. Accuracy (Sensitivity & Sensitivity) of hysteroscopic findings in the diagnosis of atypical endometrial hyperplasia (AEH)

Hysteroscopic Score Interpretation	Histopathologic Result AEH	NE	Total
AEH	4	3	7
NE	0	194	194
TOTAL	4	197	201

Table 9. Accuracy (Sensitivity & Sensitivity) of hysteroscopic findings in the diagnosis of endometrial carcinoma (EC)

Hysteroscopic Score Interpretation	Histopathologic Result EC	NE	Total
EC	10	0	10
NE	0	194	194
TOTAL	10	194	204

(40.1%).[9] Mean parity was at 1.7-3.7 for the previous studies, however we cannot compare it with this population study since the data gathered was only whether the subject was parous or not. This is one point of improvement for future studies.

In the analysis of the 245 subjects included, 205 (83.67%) presented with a Normal endometrium (NE) histopathologic result (Normal, proliferative/secretory/ atrophic endometrium, or endometrial polyp). 23 (9.38%) patients were histopathologically diagnosed with Non-atypical endometrial hyperplasia (EH). Only 2 patients (0.8%) had a diagnosis of Atypical endometrial hyperplasia (AEH) and 15 patients (6.1%) had a histopathologic diagnosis of Endometrial carcinoma (EC). Comparing with the population in the Ianieri study, 201 (46.2%) presented an NE diagnosis; 160 (36.8%) EH; 30 (6.9%) AEH; and 44 (10.1%) EC[2], our findings showed a greater incidence of NE diagnosis, and a great degree less incidence for the other three pathologies.

Multiple endometrial polyps was the most common finding for those with histopathologic findings of normal endometrium(NE), followed by widespread and irregular endometrial thickening, which is also the same findings in the study of Ianieri. For non-atypical endometrial hyperplasia (EH), widespread and irregular endometrial thickening and dilated glandular orifice appeared more commonly in the hysteroscopic findings (60.9% and 52.2% respectively), which had totally different findings from the Ianieri study, which had single endometrial polyp and irregular endometrial color as the most common findings. Atypical hyperplasia (AEH) had widespread and irregular endometrial thickening, dilated glandular orifices, and multiple endometrial polyps as its hysteroscopic manifestations in this study population, while in the Ianieri study, it was irregular endometrial color, irregular aspect of the polyp and widespread endometrial thickening. For Endometrial carcinoma (EC) the most significant and common hysteroscopic finding was growth of cerebroid and arborescent aspects followed by crumbling of endometrial neoplasm, and widespread and irregular endometrial thickening for this population, which was similar to Ianieri's findings (Irregular endometrial color appeared least frequently among all the hysteroscopic characteristics(cerebroid and arborescent aspects followed by widespread and irregular endometrial thickening). However, the seemingly marked differences were offset by the fact that the different characteristic were assigned the same score in the scoring system, e.g. multiple endometrial polyps, widespread endometrial thickening, and dilated glandular orifices were all assigned a score of 2. Any differences in the hysteroscopic findings may not reflect in the actual score (Table 2).

Hysteroscopy provides direct visualization of the endometrial cavity, thereby allowing targeted biopsy or excision of lesions identified during the procedure. However, hysteroscopy requires more skill and is more costly and invasive than most other modalities of endometrial assessment. Multiple studies have shown that hysteroscopy can aid in the detection of focal lesions of the endometrial lining that may be missed by dilatation and curettage alone.[6]

A comparative study was done by Gimpelson et. al between panoramic hysteroscopy with directed biopsy and dilatation and curettage. 276 cases were reviewed and results showed hysteroscopy revealed more information than curettage in 44 patients, whereas curettage revealed more information than hysteroscopy in only nine patients. When the results of this study are combined with those of previous studies, there is little doubt that panoramic hysteroscopy is superior to curettage in making an accurate diagnosis of pathologic conditions in the uterine cavity.[5]

However, the value of hysteroscopy in diagnosing endometrial hyperplasia and carcinoma is still debated in literature. Gkrozou, et al. have reported a hysteroscopic sensitivity for carcinoma of the endometrium of 82.6% and a specificity of 99.7%, whereas for endometrial hyperplasia, the sensitivity and specificity are 75.2% and 91.5%, respectively. In a recent clinical study in which asymptomatic and AUB patients were examined, the authors reported a sensitivity, specificity, PPV, and NPV for endometrial hyperplasia of 81%, 96%, 87% and 93%, respectively, for the AUB group, whereas for asymptomatic women, the

sensitivity was 60%. Also, there has not been a standardization regarding the morphologic hysteroscopic characteristics in the diagnosis of endometrial hyperplasia and carcinoma.[14]

Loverro, et al. aimed to determine the accuracy of hysteroscopy in the diagnosis of endometrial hyperplasia in premenopausal women with abnormal uterine bleeding. The authors performed a prospective study of 525 patients who underwent hysteroscopy. They used the following morphologic characteristics during hysteroscopy in diagnosing endometrial hyperplasia: focal or diffuse increase of the endometrial thickness, irregular aspect of the endometrial surface, button-like proliferations or large protruding cyst in the uterine cavity, dilated glandular opening of yellowish color, large superficial vessels on the panoramic view. Hysteroscopic features were compared with histopathologic findings. Results revealed that the sensitivity, specificity, negative predictive value and positive predictive value for hysteroscopic diagnosis of endometrial hyperplasia were 98%, 95%, 99% and 63%. They concluded that due to the high diagnostic accuracy, hysteroscopy was an ideal procedure for diagnosing and follow-up of patients with endometrial hyperplasia.[12]

A similar but more recent study determined the accuracy of hysteroscopy in diagnosing both endometrial hyperplasia and adenocarcinoma thru a systematic quantitative review. Relevant articles were identified through searches of the Cochrane Library, MEDLINE, and EMBASE from 1984-2001. Sixty-five primary studies were analyzed, which included 26,346 women. The overall accuracy for the diagnosis of endometrial disease was modest compared with that of cancer, and the results were heterogeneous. The accuracy tended to be higher among postmenopausal women and in the outpatient setting. The diagnostic accuracy of hysteroscopy is high for endometrial cancer, but only moderate for endometrial hyperplasia.[13]

Indeed, there is a need to standardize the intraoperative hysteroscopic morphologic characteristics that can be used to increase the sensitivity to diagnose endometrial disease, particularly endometrial hyperplasia.

To address this, Ianieri et al pooled all suggested morphologic hysteroscopic characteristics for diagnosing endometrial hyperplasia and carcinoma, and was able to narrow it down to 8 statistically significant morphologic hyteroscopic characteristics in order to create a risk scoring system (IHRSS). The scoring system showed a sensitivity and specificity of 71.1% and 80%, 48.7% and 82.5%, 63.3% and 90.4%, and 95.4% and 98.2% regarding NE, EH, AEH, and EC, respectively. The positive predictive values and negative predictive values, respectively, were 76.8% and 80% for NE, 62% and 73.5% for EH, 32.7% and 97% for AEH, and 85.7% and 99.5% for EC.

This paper evaluated the diagnostic accuracy of the Ianieri Hysteroscopic Risk Scoring System (IHRSS) and our results showed showed a sensitivity and specificity of 94.6% and 82.5%, 66.7% and 98.4%, 100% and 98.4%, and 100% and 100% regarding NE, EH, AEH, and EC, respectively. The positive predictive values and negative predictive values, respectively, were 96.5% and 75% for NE, 63.6% and 96.5% for EH, 57.4% and 100% for AEH, and 100% and 100% for EC. These scores seem to reflect the findings of Ianieri, et al. regarding the good diagnostic performance of the IHRSS. It is important to note, however, that this study only had 2 patients with AEH, 23 patients with EH, and 15 patients with EC as diagnosed thru histopathologic examination.

Another frequent observation in this study is the presence of irregular calcifications in the endometrium seen in 32 of the patients, 5 of which were diagnosed with AEH and 8 of which were diagnosed with EC. This characteristic may warrant future investigation.

Conclusion

The IHRSS showed good accuracy in diagnosing endometrial carcinoma and hyperplasia among patients who presented with abnormal uterine bleeding. This may prove to be a good diagnostic tool for hysteroscopists and may aid in intraoperative clinical and surgical judgment.

Recommendation

Given the retrospective nature of this study and the reduced samples representative of AEH, it will be necessary to prospectively validate the results obtained through a prospective study. Also, since this was a scoring system that dealt purely with hysteroscopic findings, it is recommended to incorporate clinical charcteristics (i.e. presence of Diabetes Mellitus, Parity, BMI) which are established risk factors in the development of endometrial hyperplasia and carcinoma in order to create a more comprehensive risk scoring system. Inclusion of asymptomatic patients (i.e. those undergoing hysteroscopy for infertility workup) may also be recommended to increase the variety of patients to be included in the study. Other morphologic characteristics, particularly one that is seen in this study (presence of calcifications), warrant further investigation to be part of the hysteroscopic risk scoring system in the diagnosis of endometrial hyperplasia and carcinoma.

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Conflict of Interest

The authors declare no conflict of interest during the fulfilment of this research paper.

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