Int J Clin Exp Med 2013;6(5):372-376
www.ijcem.com /ISSN:1940-5901/IJCEM1304013

Original Article

Three-step approach versus see-and-treat approach in patients with cytological abnormalities

Nilgun Guducu[1], Guliz Sidar[1], Nuray Bassullu[2], Ilknur Turkmen[2], Ilkkan Dunder[1]

[1]*Department of Obstetrics and Gynecology,* [2]*Department of Pathology, Istanbul Bilim University, Istanbul, Turkey*

Received April 17, 2013; Accepted May 11, 2013; Epub May 22, 2013; Published June 1, 2013

Abstract: The aim of this study was to compare the results of see-and-treat procedure with the classical three-step procedure in terms of initial cytology and LEEP reports. We searched the pathology charts of patients that had LEEP were searched retrospectively and then they were divided into 2 groups according to the presence or absence of a cervical biopsy before LEEP. There were 116 patients in the study. Of the patients with ASCUS/LSIL cytology and a positive cervical biopsy 48.4% had CIN 2-3 at LEEP, in contrast only 19% of the patients without a prior cervical biopsy had CIN 2-3 at LEEP (p=0.031); there was no statistically significant difference between the 2 procedures in patients with a HSIL and ASC-H smear result (p=0.726 and p=1.0 respectively). In conclusion patients with ASC-H and HSIL cytology see-and-treat approach seems more advantageous, avoids delay in treatment, noncompliance and risk of skipping lesions at biopsy.

Keywords: See-and-treat, colposcopy, CIN, overtreatment

Introduction

Loop electrosurgical excision procedure (LEEP) was introduced for the diagnosis and treatment of cervical intraepithelial neoplasia (CIN) 2-3 that could be completely visualized at colposcopy [1]. Not all patients with an abnormal cervical cytology had a colposcopically detectable ectocervical lesion, with time the indications for LEEP extended to include demonstration of the presence of CIN in these cases [2]. Bigrigg introduced the see-and-treat protocol for suspected CIN 3 at colposcopy [3]. A see-and-treat procedure omits the colposcopic biopsy step, patients undergo colposcopy and LEEP at the same time after receipt of a cytology report with cervical dysplasia. This procedure avoids noncompliance and false negative colposcopic biopsy and eases patient's anxiety [4]. LEEP was considered as a cost-effective procedure providing chance of evaluation of the excised specimen [5]. The main risk of see-and–treat procedure was justified as overtreatment, especially in low grade cervical dysplasias where the regression rate was about 47% in 24 months [6]. The aim of this study was to compare the results of see-and-treat procedure with the classical three-step procedure in terms of initial cytology and LEEP reports.

Materials and methods

This study was conducted as a retrospective chart review of 116 patients undergoing LEEP procedure because of a cytologically detected cervical dysplasia between 1 October 2009 and 31 December 2012. The study was in accordance with the Helsinki Declaration. Patients were divided into groups: 1. Colposcopy and LEEP without a previous cervical biopsy (See-and-treat approach), 2. Colposcopically directed cervical biopsy and than LEEP procedure when positive results were obtained at cervical biopsy (Standard three-step approach). We used Bethesda terminology in the classification of cervical cytology. Colposcopy and LEEP procedures were performed by gynecologists and pathologic specimens were evaluated by 2 pathologists. Colposcopic examination of the cervix was performed after applying 5% acetic acid to the ectocervix. LEEP procedures were performed by choosing an appropriate sized wire loop according to the size of the lesion during the operation. LEEP specimens

Table 1. Features of LEEP in see-and-treat and three-step procedure

		See-and-treat	Three-step procedure	*p*-value
		Mean±SD	Mean±SD	
Age (years)		33.38±6.26	34.62±8.61	[a]0.385
		n (%)	n (%)	*P*
Glandular involvement	No	13 (33.3)	14 (29.8)	[b]*0.905*
	Yes	26 (66.7)	33 (70.2)	
Surgical margin involvement	Negative	27 (71.1)	37 (84.1)	[b]*0.248*
	Positive	11 (28.9)	7 (15.9)	
Percent of involved cervical area	<33%	12 (31.6)	20 (45.5)	[c]*0.416*
	33-66%	14 (36.8)	14 (31.8)	
	>66%	12 (31.6)	10 (22.7)	
Multicentricity	Absent	17 (43.6)	23 (50.0)	[b]*0.710*
	Present	22 (56.4)	23 (50.0)	
Leep results	CIN 1	12 (21.8)	10 (16.7)	*0.808*
	CIN 2	8 (14.5)	11 (18.3)	
	CIN 3	23 (41.8)	28 (46.7)	
	Normal	12 (21.8)	11 (18.3)	
Smear results	ASCUS	6 (10.9)	12 (19.7)	*0.022**
	ASC-H	3 (5.5)	11 (18.0)	
	LSIL	15 (27.3)	19 (31.1)	
	HSIL	31 (56.4)	19 (31.1)	

[a]Student t Test. [b]Yates Continuity Correction. [c]Pearson Chi-square Test. *p<0.05.

were oriented by a single suture at 12 o'clock position. We took grade of the cervical dysplasia, involvement of the surgical margins, endocervical glandular involvement and multicentricity into evaluation.

For statistical analysis we used NCSS (Number Cruncher Statistical system) 2007 & PASS (Power analysis and sample size) 2008 Statistical Software (Utah, USA). The data showing normal distribution of parameters were compared with Student's t-test, the data showing non-normal distribution of parameters were compared with Pearson Chi-square test, Fisher's Exact test and Yates Continuity Correction test were used. *P* values <0.05 were considered as statistically significant.

Results

Mean age of the patients, involvement of the surgical margins, endocervical glandular involvement, multicentricity and grade of cervical dysplasia were similar between the two groups (**Table 1**). Patients with ASC-H at Pap-smear test were more likely to undergo cervical biopsy before LEEP procedure and patients with HSIL at Pap-smear test were more likely to undergo LEEP procedure without a prior cervical biopsy (**Table 1**).

In the three-step approach 48.4% of patients with ASCUS/LSIL, 81.8% of patients with ASC-H and 83.3% of patients with HSIL had CIN 2-3 at LEEP specimen. In the see-and-treat approach 19% of patients with ASCUS/LSIL, 100% of patients with ASC-H and 77.7% of patients with HSIL had CIN 2-3 at LEEP specimen; relative frequencies of CIN 1 and normal results are given in **Table 2**. None of the patients with ASC-H cytology had a negative LEEP result with the see-and-treat approach, but 9.1% of the patients with ASC-H had a negative LEEP result with the three-step approach. Patients with ASCUS/LSIL cytology and a positive cervical biopsy before LEEP were more likely to end up with CIN 2-3 LEEP result (48.4%) when compared to patients that underwent LEEP without a prior cervical biopsy (19%) (p=0.031); there was no statistically significant difference between the 2 procedures in patients with a HSIL and ASC-H smear result (p=0.726 and p=1 respectively) (**Table 3**).

Table 2. Relative rates of CIN 1, 2 and 3 in see-and-treat and three-step procedures when classified according to smear results

		Smear results		
	Leep result	ASCUS+LSIL	ASC-H	HSIL
		n (%)	n (%)	n (%)
See-and-treat	CIN 1	7 (33.3)	0 (0)	5 (16.1%)
	CIN 2-3	4 (19.0)	3 (100)	24 (77.7%)
	Normal	10 (47.6)	0 (0)	2 (6.5%)
Three-step	CIN 1	6 (19.4)	1 (9.1)	3 (16.7%)
	CIN 2-3	15 (48.4)	9 (81.8)	15 (83.3%)
	Normal	10 (32.3)	1 (9.1)	0 (0%)

Table 3. Rates of CIN 2-3 when compared to cytology results in see-and-treat and three-step procedures

Smear Results	Leep Results	See-and-treat	Three-step	*p*
		n (%)	n (%)	
ASCUS+LSIL	CIN 2-3	4 (19.0)	15 (48.4)	[a]*0.031*[*]
ASC-H	CIN 2-3	3 (100)	9 (81.8)	[b]*1.000*
HSIL	CIN 2-3	24 (77.4)	15 (83.3)	[b]0.726

[a]Pearson Chi-square Test. [b]Fisher's Exact test. [*]p<0.05.

Discussion

In this study most of the patients with ASC-H cytology underwent the three-step procedure and about 82% were diagnosed with CIN 2-3. Only 3 patients with ASC-H cytology were enrolled to see-and-treat procedure and all of them were diagnosed with CIN 2-3. CIN 2-3 lesions of women with ASC-H may be focal and are likely to be missed with colposcopy, 23% of ASC-H were reported to require more than 1 biopsy to diagnose CIN 2-3 [7]. These findings suggest see-and treat procedure to be advantageous in ASC-H cytology.

In this study nearly half of the patients with ASCUS/LSIL cytology had a negative LEEP result when the see-and-treat option was adopted, because of this high overtreatment rate we should avoid see-and-treat procedure in ASCUS/LSIL cytology. About one fifth of our patients with ASCUS/LSIL cytology had CIN2-3 at LEEP with the see-and-treat approach, but with the three-step approach nearly half of the patients had CIN2-3 at LEEP, these results are similar to those of previous studies [8, 9]. In another study the discrepancy between the two procedures for negative LEEP results performed because of ASCUS/LSIL were higher, 63% normal at see-and-treat, 22% normal at three-step procedure [10]. LEEP has a reported complication rate of 5%, bleeding, infection, cervical stenosis and pregnancy complications [3], therefore overtreatment may have important consequences.

See-and-treat procedure gained acceptance after its introduction [3], since than many studies proved the efficacy of the procedure in patients with a HSIL cytology [3, 8, 11-15]. In this study there was no statistically significant difference between the 2 groups in detection of CIN 2-3 at LEEP when the cytology was HSIL. Previously HSIL cytology patients were reported to have 28% [15] and 18% [10] incorrect diagnosis rate at both direct LEEP and biopsy preceeded LEEP. About 23% of our patients with HSIL cytology were overtreated with the see-and-treat procedure. Other studies reported an overtreatment rate of 4-24% with HSIL when managed with the see-and-treat procedure [10, 12, 15-18]. One literature indicated that colposcopy had a low sensitivity and specificity in the diagnosis of high-grade cervical dysplasias [19]. Skipping a lesion may affect the outcome of the patient, on the other hand there is the risk of overtreatment.

Failure to detect CIN in LEEP specimens of patients with biopsy proven CIN 2-3 lesions was reported as 18% [20]. Several explanations were suggested for these results: Spontaneous regression of the remaining small lesion left after biopsy [20], presence of the lesion in a location other than that removed with LEEP (20), destruction of the lesion by postbiopsy inflammation [21] or by cauterization of the surgical area after LEEP. When these facts are considered, some of the patients with negative LEEP results in the three-step procedure might have had CIN if they were included in the see-and-treat procedure.

The recurrence rates after LEEP procedure were related to grade and size of the lesion, positivity of the surgical margins, multicentricity and endocervical glandular involvement [22, 23]. In our study there was no difference

between the groups when the criteria mentioned above were considered. Margin involvement was similar in both groups in a previous study [15].

The main limitation of this study was its retrospective nature. We did not check the parity of the patients, which was reported to affect overtreatment rate. Our sample size was small.

In conclusion we recommend see-and-treat approach in patients with ASC-H and HSIL cytology. This will avoid the delay in treatment, noncompliance and skipped lesions at biopsy. Using see-and-treat approach in patients with low-grade dysplasias carries a high risk of overtreatment.

Conflicts of interest

Authors have no conflicts of interest to declare.

Address correspondence to: Dr. Nilgun Guducu, Istanbul Bilim University, Department of Obstetrics and Gynecology, Kisikli cad. No:106 Altunizade, 34696, İstanbul, Turkey. Tel: +90 0533 6404010; Fax: +90 02163250104; E-mail: nilgun.kutay@gmail.com

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