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Resectoscopic Versus Office Chemical Endometrial Ablation: Cohort Study

Lamiaa M Bakheet[1] , Safwat Abdelrady Mohammed[2] , Ibrahiem Ibrahiem Mohammed[3] , Ahmed M Kamel[4]

[1]Specialist, Obstetrics and Gynecology Department Health insurance
[2,3]Professor of Obstetrics and Gynecology, faculty of medicine, Assiut University
[4]Lecturer of Obstetrics and Gynecology, Faculty of medicine, Assiut University
E-mails: lamiaamohamed45@yahoo.com
safwat61@yahoo.com
ibraheem.hendy@gmail.com
Anmedkamel89@aun.edu.eg

Background: Menorrhagia is menstrual bleeding that is heavy in amount or duration and that occurs at regular intervals.
Aim: To compare office chemical endometrial ablation using TCA compared to resectoscopic procedures, estimating cost effectiveness, and evaluating quality of life before and after the procedure.
Patients & methods: This retrospective cohort study was carried out on 80 patients aged > 35 years old, with dysfunctional uterine bleeding and were randomly subdivided into either group I (underwent chemical endometrial ablation by TCA or group II (resectoscopic endometrial ablation) during the period of March 2016 to March 2020.
Results: Majority of patients in each group had improved family care and were very satisfied with the treatment with no significant differences between both groups ($p > 0.05$). Majority of patients either had been cured with treatment acceptable or had acceptable improvement in symptoms. Treatment wasn't acceptable in only 5 (27.5%) patients of group I and 7 (17.5%) patients of group II with insignificant difference between both groups ($p > 0.05$). It was found that group I had significantly lower theater cost (28.50 ± 5.33 vs. 452.50 ± 50.57; $p = 0.000$) and total health service cost (61.00 ± 4.41 vs. 485.75 ± 52.28; $p=0.000$) in comparison to group II. Meanwhile, both groups were comparable as regard recovery cost (31.00 ± 4.41 vs. 33.25 ± 7.97; $p = 0.12$).
Conclusion: Tri-cloro-acitic acid (TCA) is a safe and efficient method for treating dysfunctional uterine bleeding, particularly in non-conception women, without hospital admission or increased morbidity.

Keywords: Resectoscopic; Endometrial; TCA.

Introduction

Menorrhagia is a common gynecological disorder. According to a World Health Organization survey, there are approximately 19% of women suffering from menorrhagia worldwide. Menorrhagia is menstrual bleeding that is heavy in amount or duration and that occurs at regular intervals. Loss of more than 80 ml of blood per menstrual cycle is considered abnormal **(1)**.

Endometrial ablation is a procedure that removes or destroys the endometrial layers. The opposing walls of the myometrium collapse onto each other, and the damaged tissue contracts and develops into a scar. Endometrial ablation is performed to reduce menstrual bleeding, such as menorrhagia **(2)**.

Trichloroacetic acid (TCA) is a topically applied chemical agent that denatures proteins and causes chemical cauterization. TCA appears to be safe because the acid is not absorbed systemically and denatures on contact with tissues. It is usually applied for genital papillomas and has no systemic effect. Very few data are available about using TCA for endometrial ablation (**3**,**4**).

The aim of this study was to compare the outcomes of office chemical endometrial ablation by TCA (tri-chloro-acetic acid) compared to resectoscopic endometrial ablation and to estimate the cost effectiveness of chemical ablation in comparison to resectoscopic ablation also, to evaluated the quality of life before and after the procedure.

Patient and methods

This retrospective cohort study was carried out on 80 patients aged > 35 years old, with dysfunctional uterine bleeding with pictorial score more than 100, for at least 6 months, no structural intrauterine abnormalities, unsuccessful medical and hormonal treatment for at least 3 months, endometrial biopsy negative for atypia and cancer, completed family and no wish for further children and patients who are not candidate for hysterectomy because of medical or surgical risks was carried out during the period of March 2016 to March 2020 performed at Woman's Health Hospital, Assiut University- Assiut Egypt.

Patients were randomly divided into two equal groups: Group I: (underwent chemical endometrial ablation by TCA), group II: (resectoscopic endometrial ablation).

Inclusion criteria: Patients with dysfunctional uterine bleeding with pectorial score more than 100, aged > 35 years for at least 6 months, no structural intrauterine abnormalities and Unsuccessful medical and hormonal treatment for at least 3 months, endometrial biopsy negative for atypia and cancer, completed family and no wish for further children and patients who are not candidate for hysterectomy because of medical or surgical risks.

Exclusion criteria: Coexisting gynecological pathology (e.g. uterovaginal prolapse 2nd and 3rd degrees, ovarian pathology or pelvic inflammatory disease), endometrial hyperplasia with atypia or cancer, uterine cavity length more than 10 cm and cervical stenosis.

Methods

All patients were subjected to Complete history taking, general examination, blood tests, heavy menstrual bleeding (HMB): The study defined menstrual flow as over 8 days per month, causing daily activities to been disrupted, frequent flooding, large clots, or heavy flow causing anemia, and assessed through pectorial blood assessment **(5)**. and **Bleeding score:** The pictorial blood loss assessment chart (PBAC) was a scoring system for menstrual blood loss, evaluating the number of sanitary products used, blood soiled, blood clots passed, and flooding episodes. (**6)**.

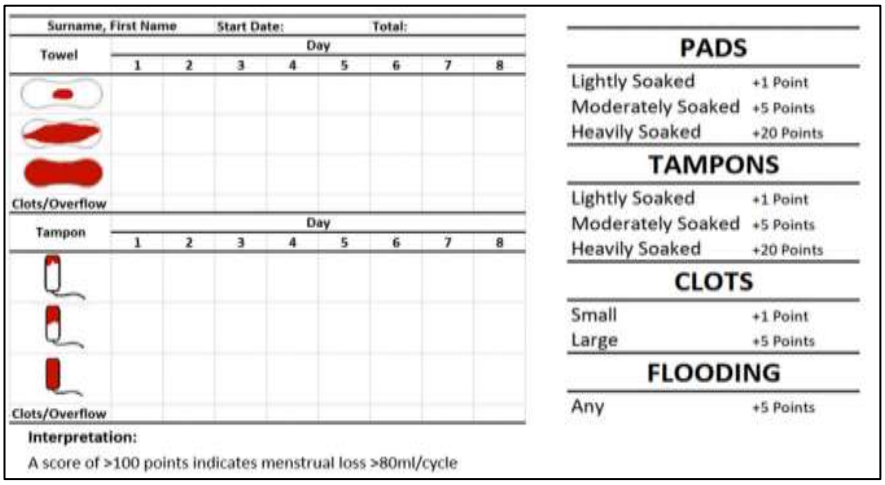

Figure (1): Pictorial bleeding assessment calendar (PBAC) (7).

Health-related quality of life: Baseline health-related quality of life parameters was completed using life style questionnaires and **Urine for pregnancy test:** To exclude pregnancy and its complications.

Assessment of the uterine cavity the assessment was done by: Transvaginal ultrasound (TV-US) was done for assessment of the uterine cavity as uterine dimensions measured 3 times and their means calculated to obtain accurate measurements.

Endometrial sampling: Endometrial biopsy was obtained, if the patient did not had endometrial histopathological examination within the past 6 months. Hysteroscopy was not routinely done to the patients prior to recruitment, unless transvaginal ultrasound scan suggested an abnormal uterine cavity.

Office hysteroscopy procedure

The patient underwent a hysterectomy, which involved exposing the cervix with a speculum and grazing the anterior lip. A 2.7 mm rigid telescope was inserted into a single flow examination sheath, and a hysteroscope was attached to a light source and a video camera for visualization. The infusion was performed using a sterile single-use intravenous infusion set, and pressure was obtained through a manual pump. The hysteroscope was then passed through the internal os into the uterine cavity, explored in a panoramic view and systematically. Data on the hysteroscopic findings was recorded, and a hysteroscopic guided biopsy was taken from the suspected endometrial lesion.

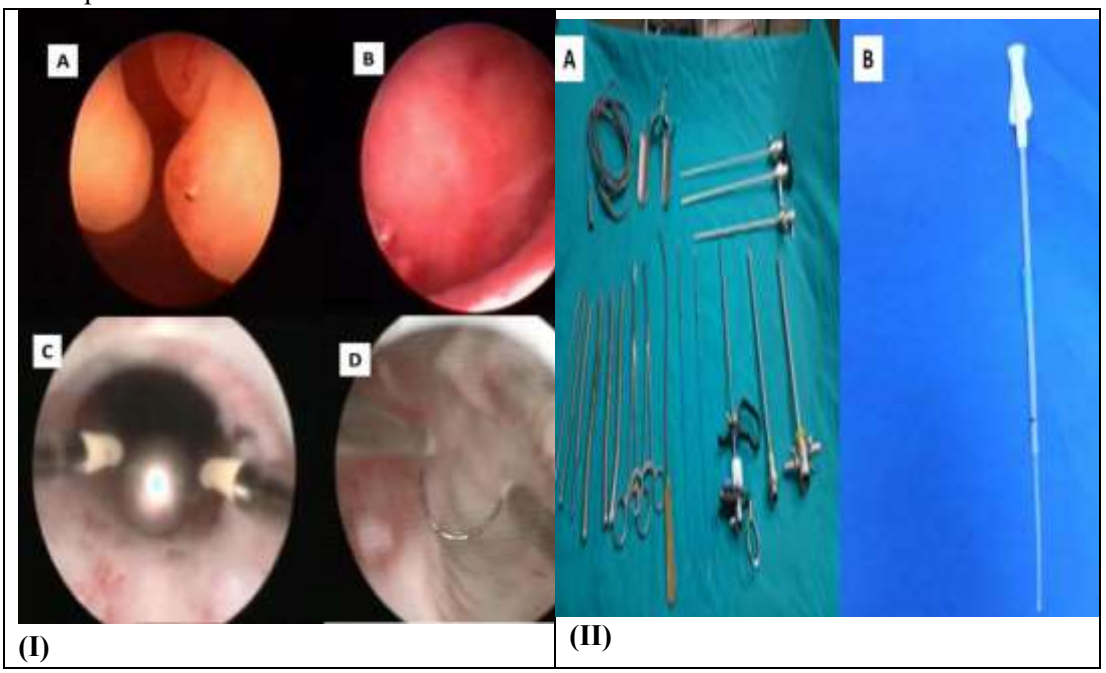

Figure (2): (I):(A) endometrial polyp, (B) Submucous fibroid, (C) Rollerball endometrial ablation and (D) Endometrial resection, (II): (A) Instruments of the hysteroscopic electrosurgical resection and (B) IUI canula.

Intervention: Endometrial thinning was performed postmenstrual after norethisterone withdrawal bleeding for 20 days, with preoperative cervical preparation using 400 mg misoprostol vaginally at the procedure night. **The First Group Treated by Chemical Ablation by TCA** as we got the 90% TCA agent from Assiut branch of Al-Gomhouria Pharmaceutical company, 13 Al-Sadat Street, which had been imported from Alpha Chemika Indian company which certified for ISO 9001:2015, www.alphachemika.co. Patients were placed in a dorsolithotomy position with elevated hips to reduce TCA leak. A Cusco bivalve speculum was used to identify the cervix. IUI canulas were inserted into the cervix, and 90% TCA was instilled into the cavity. Any leakage was collected in an asponge. In some cases, KY gel was

used to dilate any leaking acid. **(4). The second group treated by inpatient operative hysteroscopy under general anesthesia.** Patients were hospitalized one day before surgery to standardize procedures, with some admitted longer due to medical issues. Treatment was planned under general anesthesia or local anesthesia and intravenous sedation. Paracervical block was performed, and lidocaine was injected into the cervix, uterosacral ligaments, and lower uterine segment. Midazolam and Fentanyl were used as anxiolytics and intravenous sedation was provided. Reassurance and verbal support were provided throughout the procedure, and oxygen saturation and heart rate were monitored. **Positioning**: The patient underwent a diagnostic hysterectomy using vaginoscopy technique, excluding structural uterine abnormalities like polyps, after being placed in a dorsal lithotomy position and draped asterically.

Operative office hysteroscopy

The 7-mm office continuous flow operative office hysteroscope was used for endometrial resection. The hysteroscope was inserted into the vagina, dilated, and advanced into the uterine cavity. A 5.5 Frensh loop electrode was used, and a methodical approach was used. The resected tissue was removed intermittently with polyp forceps, and all tissues were sent for histologic evaluation. Ablation of the cervical canal was avoided by pre-measuring it using transvaginal ultrasound. **Trouble shooting:** In cases of cervical shock, remove instruments, administer oxygen, and position the bed head-down. Administer a 500ml crystalloid infusion and intravenous atropine if recovery isn't possible. Laparoscopic monitoring detected perforation and blanching. Assess pain, duration of chemical ablation, and any complications. **Post-procedure care:** All patients had declofenac sodium 50 mg three times a day for three days and doxycyclin 100 mg two times a day for five days, plus metronidazol 500 mg two times a day for five days. **Follow -up**: Patients were assessed for complaints and infections at one month, followed by vaginal U-S. treatment every three months for at least one year. Acceptability was assessed four weeks post-procedure, with total acceptable being the early postoperative period, and generally acceptable being the early postoperative course. Satisfaction with the outcome was measured on a 3-point scale at one-year post-procedure. The study assessed patient satisfaction with menstrual outcomes using a 3-point scale. Successful treatment was defined as normal flow, shortened menstrual bleeding, or amenorrhea, while treatment failures included recurrent heavy bleeding and hysterectomy. Normal flow was defined as regular, regular, and uninterrupted periods, while shortened bleeding was characterized as light and <4.5 days long **(8).**

Primary outcomes: Were the percent of patients that had successful treatment. A successful treatment considered in patients reported eumenorrhea, hypomenorrhea, spotting or amenorrhea. Recurrent menorrhagia and the need for hysterectomy considered treatment

failure. **Secondary outcomes:** Were duration of the procedure, pain at procedure and two hours after, satisfaction and acceptability of treatment, menstrual status, changes in health-related quality of life and cost analysis.

Post operative management: Patients treated by REA were hospitalized for 24 hours, with exceptions due to intraoperative complications or inpatient care. TCA patients were observed for two hours. Women with bleeding, blood loss, vaginal discharge, pain, or fever were advised to contact the investigator.

Sample size

The sample size calculated as we assume two proportion using Epinfov6.04 computer program. The following values were used: ratio of the two groups was 1:1, the difference was set at 20% and confidence interval was set at 90%. This calculation was based on known satisfaction rates of around 87% after resectoscopic method and 70% after TCA with 5% error and 85% power. The sample size calculated by this way gaves a total of 80 cases, 40 cases in each group.

Ethical consideration

The study was done after approval from the Ethical Committee Assiut University Hospitals, Egypt. Approval number (17200734). An informed written consent was obtained from the patients.

Statistical analysis

Statistical analysis was done by SPSS v16 (Inc., Chicago, IL, USA). Quantitative variables were presented as mean and standard deviation (SD). Qualitative variables were presented as frequency and percentage (%). Independent t-test was used with a normal distribution. The Mann–Whitney U test used for two and Kruskal Wallis test for more than two continuous variables that were not normally distributed. Fisher's exact test was used for independent nominal data. Paired t-tests and Wilcoxon's signed rank tests were used to compare between pre and post procedure means. A two tailed P value < 0.05 was considered significant.

Results

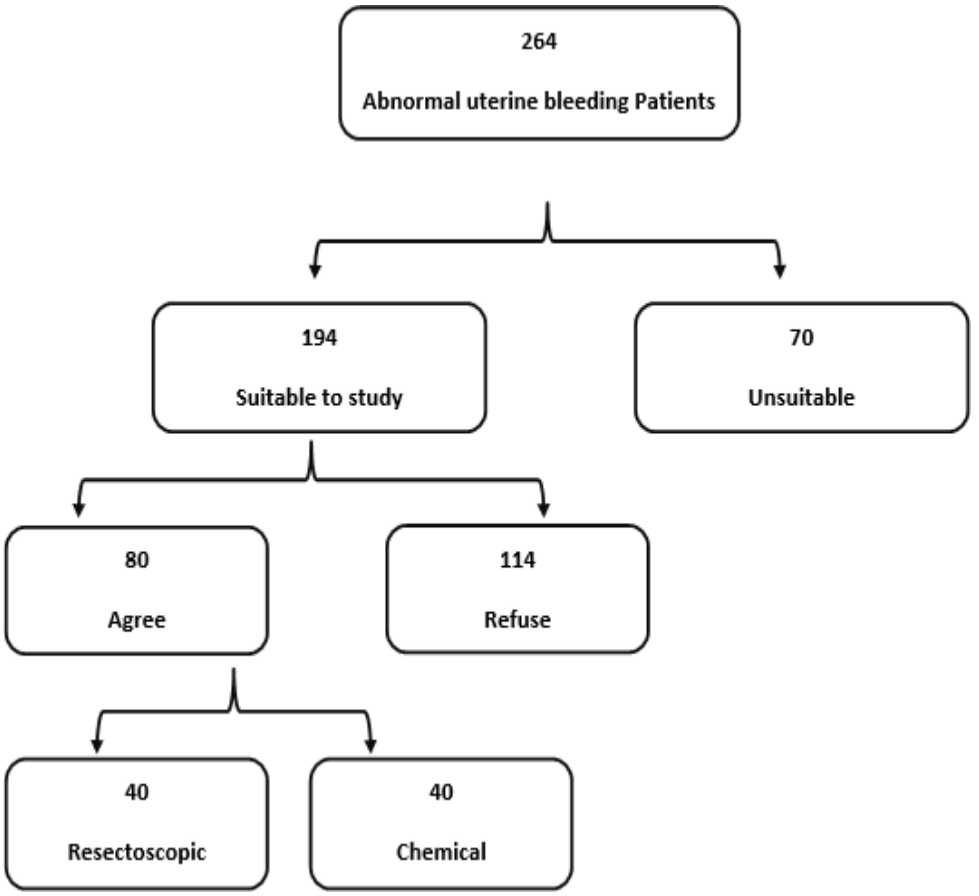

Figure (3): Flow chart of this study.

Table (1): Demographic data and obstetric history of the studied groups

Demographic data		Group I (n= 40)		Group II (n= 40)		P-value
		No.	%	No.	%	
Age (years)	Mean ± SD	47.38 ± 7.49		46.55 ± 4.36		0.553
	Range	35.0-74.0		40.0-55.0		
Educational level:	Illiterate	25	62.5%	16	40.0%	
	Basic education	11	27.5%	12	30.0%	0.099
	Secondary	2	5.0%	8	20.0%	

	High education	2	5.0%	4	10.0%	
Occupation:	Housewife	38	95.0%	33	82.5%	0.154
	Employee	2	5.0%	7	17.5%	
Residence:	Rural	17	42.5%	20	50.0%	0.501
	Urban	23	57.5%	20	50.0%	
BMI (Body mass index):	Mean ± SD	27.02 ± 3.91		27.98 ± 3.73		0.274
	Range	21.0-33.0		24.0-34.0		
Parity:	< 5	7	17.5%	6	15.0%	0.762
	≥ 5	33	82.5%	34	85.0%	
	Mean ± SD	5.80 ± 2.40		6.10 ± 1.74		0.524
	Median (Range)	5.5 (0.0-11.0)		6.0 (3.0-11.0)		
Abortion:	None	19	47.5%	13	32.5%	
	One	10	25.0%	13	32.5%	0.391
	Two or more	11	27.5%	14	35.0%	
	Mean ± SD	1.22 ± 1.72		1.08 ± 0.94		0.630
	Median (Range)	1.0 (0.0-6.0)		1.0 (0.0-4.0)		

It was found that both groups had insignificant difference as regard baseline personnel data, parity and abortion. (Table 1)

Table (2): Health related quality of life among both groups

	Group I (n= 40)		**Group II (n= 40)**		**P-value**
	Mean ± SD		**Mean ± SD**		
Bleeding score:					
Mean ± SD	470.00 ± 241.26		522.75 ± 224.74		0.264
Median (Range)	420 (140-960)		475 (165-950)		
Pain score:					
Mean ± SD	3.93 ± 2.31		3.73 ± 2.50		0.644
Median (Range)	4.5 (0.0-8.0)		4.0 (0.0-8.0)		
Life style affection:					
Yes	38	95.0%	37	92.5%	1.000
No	2	5.0%	3	7.5%	
Sex affected:					

Yes	38	95.0%	36	90.0%	0.675
No	2	5.0%	4	10.0%	
Work absence due to menses:					
None	12	30.0%	12	30.0%	
None but work suffer	13	32.5%	9	22.5%	0.134
1 day	2	5.0%	9	22.5%	
2 days or more	13	32.5%	10	25.0%	
Physical fitness:					
Yes	36	90.0%	35	87.5%	1.000
No	4	10.0%	5	12.5%	
Physical fitness score:					
Mean ± SD	50.38 ± 26.61		63.25 ± 27.49		0.036*
Mode affection:					
Yes	39	97.5%	37	92.5%	0.615
No	1	2.5%	3	7.5%	
Mode affection score:					
Mean ± SD	53.50 ± 20.91		50.50 ± 25.21		0.564
Social affection:					
Yes	34	85.0%	31	77.5%	0.390
No	6	15.0%	9	22.5%	
Social affection score					
Mean ± SD	61.63 ± 25.20		61.75 ± 30.88		0.984
Mental affection:					
Yes	32	80.0%	34	85.0%	0.556

Both groups had insignificant differences as regard health related quality of life with exception of physical fitness score that was significantly higher among group II (63.25 ± 27.49 vs. 50.38 ± 26.61; p= 0.036). (Table 2)

Table (3): Menstrual status and length of cycle during follow up visits among the studied groups

	Menstrual status	Group I		Group II		P-value
		No.	%	No.	%	
1st visit	**Amenorrhea**	33	82.5	31	77.5	0.789
	Hypomenorrhea	6	15.0	7	17.5	
	Only spotting during period	0	0.0	0	0.0	
	Eumenorrhea	0	0.0	0	0.0	

	Unchange or heavier	1	2.5	2	5.0	
2nd visit	**Amenorrhea**	25	67.6	23	62.2	0.954
	Hypomenorrhea	7	18.9	9	24.3	
	Only spotting during period	2	5.4	2	5.4	
	Eumenorrhea	3	8.1	3	8.1	
	Unchange or heavier	0	0.0	0	0.0	
3rd visit	**Amenorrhea**	22	62.9	19	54.3	0.880
	Hypomenorrhea	9	25.7	10	28.6	
	Only spotting during period	2	5.7	3	8.6	
	Eumenorrhea	0	0.0	0	0.0	
	Unchange or heavier	2	5.7	3	8.6	
4th visit	**Amenorrhea**	22	64.7	18	56.3	0.604
	Hypomenorrhea	10	29.4	10	31.3	
	Only spotting during period	2	5.9	4	12.5	
	Eumenorrhea	0	0.0	0	0.0	
	Unchange or heavier	0	0.0	0	0.0	
5th visit	**Amenorrhea**	21	61.8	16	50.0	0.559
	Hypomenorrhea	10	29.4	11	34.4	
	Only spotting during period	3	8.8	5	15.6	
	Eumenorrhea	0	0.0	0	0.0	
	Unchange or heavier	0	0.0	0	0.0	
Cycle length						
1st visit		29.71 ± 0.76		32.86 ± 7.56		0.295
2nd visit		35.00 ± 9.05		40.00 ± 12.79		0.281
3rd visit		38.57 ± 12.31		42.86 ± 13.83		0.394
4th visit		40.91 ± 13.00		46.00 ± 14.30		0.403
5th visit		39.23 ± 12.56		43.33 ± 14.35		0.454
Duration of bleeding						
1st visit		3.44 ± 2.07		3.89 ± 1.62		0.618
2nd visit		3.29 ± 2.20		3.57 ± 1.99		0.721

3rd visit	3.43 ± 1.40	3.71 ± 0.99	0.539
4th visit	3.00 ± 1.26	3.40 ± 0.84	0.410
5th visit	3.00 ± 1.15	3.33 ± 0.78	0.410

Both groups had insignificant differences as regard menstrual status and length of cycle during follow up visits (p> 0.05). (Table 3)

Table (4): Bleeding and pain score among the studied groups

Bleeding score	**Group I**	**Group II**	**P-value**
	Mean ± SD	**Mean ± SD**	
1st visit	13.26 ± 46.19	8.00 ± 19.21	0.514
2nd visit	17.95 ± 35.21	15.24 ± 30.96	0.727
3rd visit	17.47 ± 12.17	19.22 ± 31.94	0.144
4th visit	12.70 ± 22.75	12.56 ± 22.51	0.981
5th visit	17.24 ± 27.00	17.25 ± 26.93	0.999
Pain score			
1st visit	1.88 ± 2.59	1.88 ± 2.59	1.000
2nd visit	1.36 ± 2.34	1.64 ± 2.34	0.747
3rd visit	1.62 ± 2.22	1.85 ± 2.19	0.773
4th visit	0.60 ± 1.26	1.00 ± 1.50	0.521
5th visit	0.60 ± 1.26	1.00 ± 1.50	0.521

Both groups had insignificant differences as regard bleeding and pain score during different visits (p> 0.05). (Table 4)

Table (5): Family care satisfaction with the treatment and acceptability of the treatment& service cost among the studied groups

		Group I		**Group II**		**P-value**
		No.	**%**	**No.**	**%**	
Family care						
1st visit	**Improved**	35	87.5	32	80.0	
	About the same	5	12.5	8	20.0	0.363
	Worse	0	0.0	0	0.0	
	Improved	33	89.2	29	78.4	

2nd visit	**About the same**	4	10.8	8	21.6	0.207
	Worse	0	0.0	0	0.0	
3rd visit	**Improved**	30	85.7	27	77.1	
	About the same	5	14.3	8	22.9	0.356
	Worse	0	0.0	0	0.0	
4th visit	**Improved**	31	91.2	25	78.1	
	About the same	3	8.8	7	21.9	0.180
	Worse	0	0.0	0	0.0	
5th visit	**Improved**	31	91.2	25	78.1	
	About the same	3	8.8	7	21.9	0.180
	Worse	0	0.0	0	0.0	
Satisfaction with treatment						
1st visit	**Very satisfied**	28	70.0	25	62.5	
	Satisfied	7	17.5	7	17.5	0.650
	Not satisfied	5	12.5	8	20.0	
2nd visit	**Very satisfied**	27	73.0	24	64.9	
	Satisfied	6	16.2	7	18.9	0.721
	Not satisfied	4	10.8	6	16.2	
3rd visit	**Very satisfied**	26	74.3	23	65.7	
	Satisfied	4	11.4	6	17.1	0.714
	Not satisfied	5	14.3	6	17.1	
4th visit	**Very satisfied**	27	79.4	22	68.8	
	Satisfied	7	20.6	10	31.3	0.322
	Not satisfied	0	0.0	0	0.0	
5th visit	**Very satisfied**	27	79.4	22	68.8	
	Satisfied	7	20.6	10	31.3	0.322
	Not satisfied	0	0.0	0	0.0	
Acceptability of the treatment	**Treatment acceptable**	24	60.0%	19	47.5%	0.529
	Acceptable improvement in symptoms	11	27.5%	14	35.0%	
	Treatment not acceptable	5	12.5%	7	17.5%	
Service cost	**Theatre costs**	28.50 ± 5.33		452.50 ± 50.57		0.000*

	Recovery costs	31.00 ± 4.41	33.25 ± 7.97	0.122
	Total health service cost	61.00 ± 4.41	485.75 ± 52.28	0.000*

Majority of patients in each group had improved family care and were very satisfied with the treatment with no significant differences between both groups (p> 0.05). Majority of patients either had been cured with treatment acceptable or had acceptable improvement in symptoms. Treatment wasn't acceptable in only 5 (27.5%) patients of group I and 7 (17.5%) patients of group II with insignificant difference between both groups (p> 0.05). It was found that group I had significantly lower theater cost (28.50 ± 5.33 vs. 452.50 ± 50.57; p= 0.000) and total health service cost (61.00 ± 4.41 vs. 485.75 ± 52.28; p=0.000) in comparison to group II. Meanwhile, both groups were comparable as regard recovery cost (31.00 ± 4.41 vs. 33.25 ± 7.97; p= 0.12). (Table 5)

Discussion

Endometrial ablation (EA) has been introduced as an alternative to radical treatment since late 80's and early 90's and has gained substantial popularity as a convenient procedure of less cost and high safety profile. Thereafter, evidence from the literature has supported EA as a second line treatment if medical treatment fails or is contraindicated **(9)**.

In our study showed that the both groups had insignificant difference as regard baseline personnel data, parity and abortion.

In our study showed that both groups had insignificant differences as regard health related quality of life with exception of physical fitness score that was significantly higher among group II (63.25 ± 27.49 vs. 50.38± 26.61; p= 0.036).

In our study showed that both groups had insignificant differences as regard menstrual status and length of cycle during follow up visits and showed that both groups had insignificant differences as regard bleeding and pain score during different visits (p> 0.05). so, there was improvement in bleeding score and pain during follow up. Also, frequency of amenorrhea was higher in both groups at first visit (82.5% vs. 77.5%), then percentage was decreased during follow up and reached 61.8% in TCA group and 50% in resectoscopic group.

Previous study reported that there was a satisfactory clinical reduction of menstrual flow (amenorrhea, hypomenorrhea and eumenorrhea) at a rate of 97.1% (topical TCA) and 85.7% (intrauterine TCA instillation) at 6 months **Abdellah and Elsaman. (10**).

In comparison to our results, the amenorrhea rate was lower in the of Kucuk and Okman (28.9% at 3 months and 28.9% at 6 months respectively). But the latter study had higher frequency of hypomenorrhea and eumenorrhea (37.8% and 33.3% at 3 months and 35.5% and 35.5% respectively) **Kucuk and Okman (4**).

Another study reported that EA with TCA had reduction of the menstrual bleeding of 86.7% at 6 months **Kucukozkan et al. (3).**

A meta-analysis comparing first versus second generation EA, there was no significant difference in amenorrhoea rates at short (OR 1.27, 95%CI 0.83-1.95), intermediate (OR 0.79, 95%CI 0.48-1.30), or long term (OR 1.39, 95%CI 0.94-2.07) follow-up. This was the same with patient satisfaction rates at short (OR 0.76, 95%CI 0.53-1.09), intermediate (OR 0.76, 95%CI 0.47-1.23), and long term (OR 0.68, 95%CI 0.31-1.51) follow-up. No difference in re-intervention rates was demonstrated **Bofill Rodriguez et al. (11).**

In our study, we noticed improvement in the sexual life during follow up visits after EA in both groups.

Similarly, previous study evaluated female Sexual Function Index [FSFI], female Sexual Distress Scale [FSDS], and Short-Form Health Survey [SF–12]) in 136 women before and after endometrial ablation. Female sexual function improved and personal distress associated with sexual function decreased after endometrial ablation for heavy menstrual cycles. **Marnach et al. (12).**

Previous metanalysis evaluated changes in anxiety and depression by means of the Hospital Anxiety and Depression Scale (HADS) scale (women treated with hysteroscopic endometrial resection versus endometrial ablation for heavy menstrual bleeding). There were no significant differences for quality of life, anxiety and depression for women undergoing endometrial ablation relative to hysterectomy **Vitale et al. (9).**

In our study showed that a majority of patients in each group had improved family care and were very satisfied with the treatment with no significant differences between both groups ($p > 0.05$). Majority of patients either had been cured with treatment acceptable or had acceptable improvement in symptoms. Treatment wasn't acceptable in only 5 (27.5%) patients of group I and 7 (17.5%) patients of group II with insignificant difference between both groups ($p > 0.05$). It was found that group I had significantly lower theater cost (28.50 ± 5.33 vs. 452.50 ± 50.57; $p = 0.000$) and total health service cost (61.00 ± 4.41 vs. 485.75 ± 52.28; $p=0.000$) in comparison to group II. Meanwhile, both groups were comparable as regard recovery cost (31.00 ± 4.41 vs. 33.25 ± 7.97; $p = 0.12$).

Limitations

The sample size was relatively small, lack of randomization, included patients with different causes of AUB, being conducted in single center. The follow up of patients was limited for relatively short period. Yet, to our knowledge, this study considered the first reported study that discussed such issue. It's recommended to perform such studies on large number of patients to draw firm conclusion about efficacy of tri-cloro-acitic acid in such patients.

Conclusion

Tri-cloro-acitic acid (TCA) can be used for treating dysfunctional uterine bleeding seems to be efficient and safe, especially in women who do not require conception. It's a simple, cheap procedure with less morbidity with no need of hospital admission.

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Conflict of Interest: Nil

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