Application of conjugated estrogen cream in the treatment of postmenopausal atrophic vaginitis

Dongyan Li[1,2] and Wenpei Bai[1]*
[1]Obstetrics and Gynecology Department, Beijing Shijitan Hospital Affiliated to Capital Medical University, Beijing, China
[2]Second Hospital of Shanxi Medical University, Taiyuan, China

Abstract: To observe and analyze the effect of conjugated estrogen cream in the treatment of postmenopausal atrophic vaginitis. The 160 patients clearly diagnosed with postmenopausal atrophic vaginitis and treated in our hospital were selected as subjects and divided into study group and reference group with equal number of cases. The reference group was treated with compound metronidazole suppository, while the study group was treated with conjugated estrogen cream. The treatment efficacy of the two groups was compared and observed. Comparison of estradiol and follicle-stimulating hormone levels after treatment in the two groups show that the study group has obvious advantage over the reference group, $p<0.05$; comparison of vagina cleanliness in the two groups after treatment shows the study group is significantly superior to the reference group, $p<0.05$; comparison of incidence of adverse reactions in the two groups shows that the study group has lower incidence, with statistical significance in comparison between the groups, $p<0.05$. Treatment of postmenopausal atrophic vaginitis with combination of conjugated estrogen cream and compound metronidazole suppository can achieve good results with high safety and reliability.

Keywords: Conjugated estrogen cream, compound metronidazole suppository, postmenopausal atrophic vaginitis, curative effect.

INTRODUCTION

Atrophic vaginitis mainly attacks natural menopausal and post-ovarian ablation women, as well as women with postpartum amenorrhea or drug pseudomenopause therapy. Studies have shown that endocrine estrogen will reduce in the body with time. Estrogen is a hormone that plays an important role in maintaining body health. A significant reduction in estrogen can cause dryness of vaginal wall and reduced elasticity. At the same time, there will be less vaginal mucous secretions, leading to decreased vaginal lubricity and shrinkage (atrophy) of the vagina (Huang, 2016; Zhang, 2016; Vaccaro, *et al*., 2017).

According to menopause, history of ovarian surgery, history of pelvic radiation therapy or drug amenorrhea history and clinical manifestations, it is usually not difficult to diagnose patients with atrophic vaginitis, but the diagnosis requires exclusion of other diseases. The vaginal secretions should be taken for close examination. Where, a large number of basal cells (fig. 1) and white blood cells are seen under the microscope, but no *Trichomonad* and *Candida* (fig. 2). In case of bloody leucorrhea, it should be differentiated from uterinemalignancy by routine cervical smears, fractional curettage surger if necessary. The vaginal wall granulation tissue and ulcers need to be differentiated from vaginal cancer by local biopsy (Portman, Gass, 2017; Portman, Gass, 2016). It is crucial to provide timely and effective drug treatment for patients with this disease, which is an important guarantee for improving patients' physical and mental health so that they receive a higher quality of life. This study is to observe and investigate the application effect of conjugated estrogen cream in the treatment of postmenopausal atrophic vaginitis.

MATERIALS AND METHODS

General information

The 160 patients clearly diagnosed with postmenopausal atrophic vaginitis and treated in Beijing Shijitan Hospital Affiliated to Capital Medical University from January 2015 to December 2017 were enrolled as subjects. The selected patients and relatives signed the informed consent before treatment. This paper has a rigorous structure, and the conclusion has been approved by relevant ethics and relevant departments. The inclusion criteria for patients include, all clinically relevant examinations meet the relevant diagnostic criteria for postmenopausal atrophic vaginitis, as shown in fig. 3; patients had the right to information and signed formal informed consent; patients had good communication skills. Exclusion criteria include those with thromboembolic disease, thrombophlebitis (Su, 2017), those with estrogen-dependent malignancy, and endometrial hyperplasia; those having received sex hormone drugs in the past three months and those with drug allergy (Fan, 2015; Wang, 2018).

Admission, with the singular as the study group and the dual as the control group, each having 80. Where, the study group ranged in age from 48 to 70 years old, with

*Corresponding author: e-mail: bwp66@163.com

an average of (57.4±3.3) years. With menopause years between 2 and 18 years, the average was (8.6±0.9) years. The reference group ranged in age from 47 to 68 years old, with an average of (58.2±3.6) years. With menopause years between 2 and 19 years, the average was (9.2±0.5) years. Comparison of relevant data of the two groups indicates comparability, p>0.05.

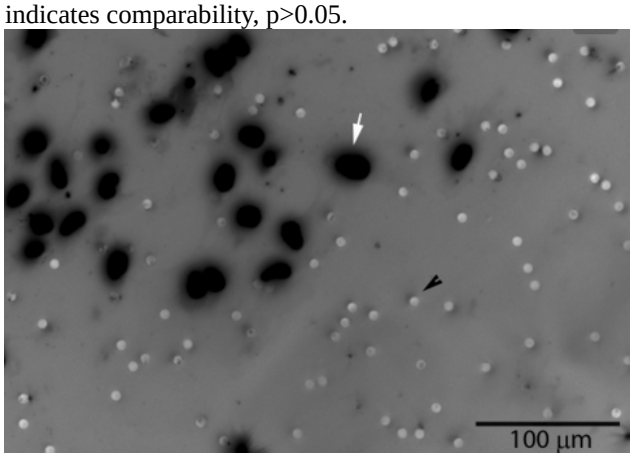

Fig. 1: Basal cell

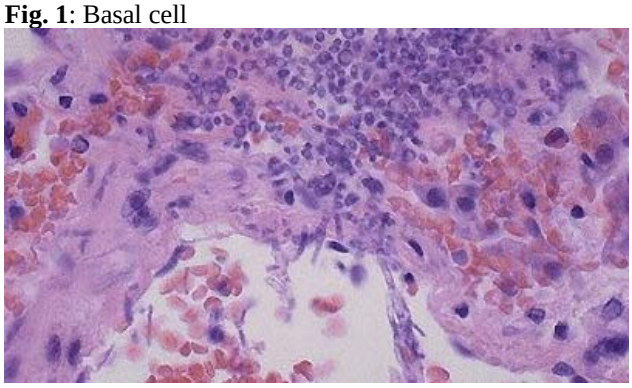

Fig. 2: Candida

Fig. 3: Atrophic vaginitis

Methods

The two groups were treated with different treatment plans. The reference group was treated with compound metronidazole suppositories, while the study group was treated with combination of conjugated estrogen cream and compound metronidazole suppositories. For the treatment measure of compound metronidazole suppositories, the vulva area is strictly cleaned before bedtime, followed by insertion of metronidazole suppositories in the vagina, 1 tablet per night. For the treatment measure of conjugated estrogen cream, after careful cleaning of the vulva area, 0.5g conjugated estrogen cream is taken with a syringe and injected into the depth of vagina. With one treatment per day, the treatment should continue for 3 weeks (Barbara, *et al*., 2016; Lee, *et al*., 2018).

Observation indicators

On the 7th day after the medication, the patients are asked to return to the hospital for review, and medication effectiveness is compared between the two groups. Observation aspects cover, vaginal health scores and atrophic vaginitis symptoms scores for both groups; estradiol and follicle-stimulating hormone levels before and after treatment; vaginal cleanliness and vaginal pH after treatment; adverse reactions during treatment.

STATISTICAL ANALYSIS

The statistical analysis software used was SPSS 21.0. Where, the measurement data were expressed as mean ± average ($\bar{x}$ ±s), and t was used for comparison between groups; the count data was expressed using natural numbers (n) and percentages (%) and X2 was used for comparison between groups. p<0.05 indicates statistical value.

RESULTS

Comparison of efficacy scores between the two groups

As shown in table 1, observation of pre-treatment vaginal health scores and atrophic vaginitis symptoms scores of the two groups shows no significant differences (p>0.05), with no statistical significance. After implementation of different treatment plans, the study group shows better improvement in vaginal health score and atrophic vaginitis symptom scores compared with the reference group and there is difference in comparison between the groups, p<0.05.

Comparison of estradiol and follicle-stimulating hormone levels before and after treatment in the two groups

As shown in table 2 below, comparison of estradiol and follicle stimulating hormone between the two groups shows no significant difference before treatment, p>0.05; after treatment, the study group has significant advantages over the reference group in terms of estradiol and follicle stimulating hormone levels, p<0.05.

Comparison of vaginal cleanliness after treatment in both groups

As shown in table 3, the results show that the proportion of patients with grade I-II vaginal cleanliness and vaginal

Table 1: Comparison of efficacy scores between the two groups ($\bar{x}$ ±s)

Group	Case number	Vaginal health score		Atrophic vaginitis symptom score	
		Before medication	After medication	Before medication	After medication
Study group	80	8.67±1.80	16.29±0.28	3.86±1.32	0.23±0.10
Reference group	80	8.26±1.93	12.18±0.36	4.02±0.95	2.06±0.22
t		0.18	10.48	0.16	4.37
p		>0.05	<0.05	>0.05	<0.05

Table 2: Comparison of estradiol and follicle stimulating hormone levels before and after treatment in the two groups ($\bar{x}$ ±s)

Group	Case number	Estradiol (pmol/L)		Follicle stimulating hormone (U/L)	
		Before medication	After medication	Before medication	After medication
Study group	80	42.19±2.75	51.90±3.28	69.80±4.25	48.46±5.10
Reference group	80	42.05±2.93	46.30±2.36	69.78±5.24	63.92±4.55
t		0.47	9.52	0.15	8.37
p		>0.05	<0.05	>0.05	<0.05

Table 3: Comparison of vaginal cleanliness after treatment in both groups [n(%)]

Group	Case number	I-II grade	III grade	IV grade	Vaginal pH value below 5
Study group	80	72(90.00)	6(7.50)	2(2.50)	40(50.00)
Reference group	80	25(31.25)	40(50.00)	15(18.75)	18(22.50)
X^2		12.08	9.18	8.26	15.20
p		<0.05	<0.05	<0.05	<0.05

Table 4: Comparison of incidence of adverse reactions in both groups [n(%)]

Group	Case number	Vaginal bleeding	Pruritus vulvae	Abdominal distention and pain	Incidence of adverse reactions
Study group	80	2	1	1	4(5.00)
Reference group	80	3	5	4	12(15.00)
X^2					10.23
p					<0.05

pH values below 5 in the study group is significantly higher than that in the reference group, p<0.05, with statistical significance.

Comparison of incidence of adverse reactions in the two groups

As shown in table 4 below, the incidence of adverse reactions is lower in the study group, p<0.05, with statistical significance.

DISCUSSION

Postmenopausal women will lack a large number of estrogens in their bodies and face declining ovarian function, which causes atrophic changes in estrogen-dependent organs, followed by non-specific inflammatory reactions, seriously impacting patients' normal quality of life. According to related survey data, older women in China have a higher incidence of atrophic vaginitis and the incidence of the disease will increase with age. The pathogenesis of postmenopausal atrophic vaginitis is that reduced ovarian function and estrogen levels, plus increased vaginal pH value, lowers the body's immunity and results in invasion and propagation of the bacteria. Drug therapy is the main treatment plan for postmenopausal atrophic vaginitis. Failure to treat the disease timely or take appropriate treatment plan will cause large vulvar ulcers, and even serious vaginal or uterine cavity pyogenic inflammatory disease. Therefore, adoption of scientific and effective drug treatment program to improve the condition is an important research content in the current medical community.

Metronidazole with ideal bactericidal effect enjoys common application in the treatment of gynecological inflammation. However, use of metronidazole alone in the treatment of menopausal atrophic vaginitis will not well improve estrogen level, nor significantly adjust vaginal acid-base balance. Moreover, sole use of metronidazole can only control the inflammation in a short period of time and temporarily relieve the clinical symptoms. To completely eradicate the disease is very difficult in this

case. The additional estrogen in the treatment of postmenopausal atrophic vaginitis can improve estrogen levels in combination with metronidazole by internal conditioning, lowering the internal pH of the vagina, and improving the vaginal environment so that superior treatment efficacy can be achieved.

CONCLUSION

To summarize, treatment of postmenopausal atrophic vaginitis with combination of conjugated estrogen cream and metronidazole suppositories can achieve good results, lower incidence of adverse reactions and realize higher safety and reliability. Therefore, it is worth promoting.

In the research by Lee YK *et al*. (Lee, *et al.*, 2018) for patients with atrophic vaginitis after menopause (observation group), compared with treating patients in reference group with compound metronidazole suppository, treating patients in reference group with combined therapy of estrogen cream and compound metronidazole suppositories can achieve higher overall therapeutic efficiency (88.29%), better vaginal cleanliness and lower adverse reaction problems. This result is consistent with the results of this study. Through comparing the estradiol level and follicle-stimulating hormone level of the two groups of patients after treatment, the results showed that the study group had significant advantages over the control group significant, $p<0.05$; through comparing the vagina cleanness between two group after treatment, the results also showed that the study group was significantly better than the control group, $p<0.05$; through comparing the rate of adverse reaction between two group, it was observed that the study group had lower rate of adverse reaction than control group and the inter-group difference was of statistical significance, $p<0.05$.

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