THE INFLUENCE OF GENITALIS ODORS TO WOMEN'S LIFE

A INFLUÊNCIA DOS ODORES DE GENITAIS NA VIDA DA MULHER

Paulo Cesar Giraldo[1], *Rose Luce do Amaral*[1], *Ana Katherine Silveira Gonçalvez*[2]

ABSTRACT

Objective: To study current knowledge about genital odors by narrative review and suggest a scientifically validated approach to the problem. **Methods:** Narrative review taking into account articles published in the last 15 years. **Results:** Vaginal infections and/or dysbioses are the main causes of bad genital odor, with bacterial vaginosis (BV) being the most frequent finding. The change in the body's smell can be caused by several factors that include everything from food to stress. As the cases of vaginal dysbioses are becoming more and more frequent and the treatments usually recommended do not always solve the problem, the use of vaginal acidifiers has become more recurrent to rebalance the vulvovaginal pH. Despite this, there is not yet a scientifically validated approach to identifying the cause of the odor. **Conclusion:** Female genital malodor affects women's quality of life and should be investigated and treated accordingly.

Keywords: odorants; bacterial vaginosis; hygiene; trichomonas infections.

RESUMO

Objetivo: Estudar por revisão narrativa os conhecimentos atuais sobre odores genitais e sugerir uma forma de abordagem do problema que seja cientificamente validada. **Métodos:** Revisão narrativa levando em conta artigos publicados nos últimos 15 anos. **Resultados:** As infecções e/ou disbioses vaginais são as principais causas do mau odor genital, sendo principalmente a vaginose bacteriana (VB) o achado mais frequente. A alteração no cheiro do corpo pode ser provocada por uma série de fatores que incluem desde a alimentação até o estresse. Como a ocorrência de casos de disbioses vaginais vem se tornando cada vez mais frequente e os tratamentos habitualmente recomendados nem sempre resolvem o problema, vem se tornando mais recorrente o uso de acidificantes vaginais com a finalidade de reequilibrar o pH vulvovaginal. Apesar disso, não há ainda um forma de abordagem e de identificação da causa do odor que seja cientificamente validada. **Conclusão:** O mau odor genital feminino afeta a qualidade de vida das mulheres e deve ser investigado e tratado adequadamente.

Palavras-chave: odorantes; vaginose bacteriana; higiene; tricomoníase.

INTRODUCTION

The odors emanating from the genitals have always been a constant concern for women throughout the centuries, however it has not always been well understood. To avoid embarrassment, many women use various techniques to disguise the inconvenience (absorbents, perfumes, multiple covers, etc.). In parallel, there is also a concern that the odor may be due to unidentified serious illnesses. It is not uncommon to seek medical assistance due to a bad genital odor[1]. In hot-climate countries, this problem is aggravated since the high temperature facilitates the volatilization of substances produced in the genital region that permeate the olfactory receptors of the woman herself or even of people around her. Sometimes, the complaint of unpleasant genital odor is disguised amid other signs and symptoms (vaginal discharge, itching, dysuria) that do not always bring so much concern to the woman. The person who has a chronic genital bad odor has social, professional, and mainly sexual life extremely shaken[2], especially if it is perceived by his sexual partner, family members, or colleagues at work[1]. Unfortunately, gynecologists have little knowledge of the causes that promote genital odor[3].

In parallel, the bad genital odor can be a warning for several health concerns. The bad vaginal odor may, among other things, be determined by vaginal infections that predispose to more serious infections such as human immunodeficiency virus (HIV), human papillomavirus (HPV) and acute pelvic inflammatory disease (PID)[3]. It may also be motivated by hormonal and even neoplastic diseases (cervical cancer). It is not uncommon the cause of odor to be foreign bodies or remains of products inadvertently forgotten inside the vagina (tampons, condoms, toilet paper, intimate hygiene products, etc.).

The bad genital odor when it manifests itself in a chronic way can influence the woman's quality of life, as it may result in low self-esteem, marital maladjustments and trigger psychosomatic diseases (**Table 1**).

METHODS

It is a study of narrative review of a broad analysis of the literature, without establishing a rigorous and replicable methodology in terms of data reproduction. The search was made using keywords (odorants, bacterial vaginosis (BV), hygiene, *Trichomonas* infections), and articles and books considered appropriate by the authors were used, after reading titles and abstracts, to discuss the state of the art of the subject.

Table 1 – Main consequences of the presence of prolonged female genital malodor.

Low self-esteem
Sexual maladjustments
Marital mismatches
Increased risk of acquiring viral and bacterial infections
Risk of having hormonal diseases
Risk of having neoplastic diseases
Risk of developing psychosomatic diseases

[1]Universidade Estadual de Campinas – Campinas (SP), Brazil.
[2]Universidade Federal do Rio Grande do Norte – Natal (RN), Brazil.

RESULTS AND DISCUSSION

Infections and/or vaginal dysbioses are the main causes of bad genital odor, with BV being the most frequent finding. In these cases, there is a high proliferation of anaerobic bacteria without concomitant production of acids (especially lactic acid), decreasing vaginal acidity. The vaginal pH, that usually in a healthy woman ranges from 3.8 to 4.5, in these conditions (BV and trichomoniasis) is above 4.5, reaching levels of 6.0. The vaginal mucosa with a high pH (>4.5) facilitates the growth of harmful bacteria to the ecosystem, promoting a large production of volatile substances (trimethylamine, cadaverine, and putrescine) responsible for bad vaginal odor[3]. Studies have shown that the use of substances with acidic pH can inhibit the growth of bacteria that produce bad vaginal odor[4]. Despite this knowledge, there is a great frustration for the gynecologist when they do not find such a finding and, worse, they frustrate their patients even more because they are unable to provide a solution to the problem. Even when BV is identified, the simple prescription of metronidazole may not be enough to solve the problem due to its high recurrence rates[5].

The odor is one of the many sensations the individual uses to relate to the environment, determining the different perceptions of the facts that occur around him or in his memory. This perception seems to be more developed in women than in men[6]. The human sense of smell is poorly developed compared to that of other mammals, but the human olfactory epithelium contains about 20 million sensory cells, each with six "sensory hairs" (a dog has more than 100 million sensory cells, each with at least 100 "sensory hairs"). The odor is present in almost every good and bad time in life. It can cause attraction or disgust for certain people or situations. For something to smell it must be volatile, that is, it must release gaseous molecules. The variety of odors that the human sense of smell can recognize is enormous and impressive[7].

The change in the body's smell can be caused by many factors that range from food to stress. The bad genital odor causes discomfort and embarrassment to many women[1,2], and when BV or vaginitis is not the cause, it can be caused by the accumulation of secretions produced by millions of sebaceous and sweat glands found in the vulva and surroundings that are metabolized by bacteria. Despite this, there is still no scientifically validated approach and identification of the cause of the odor[5]. In the vagina, lactobacilli prevent the growth of pathogens and other opportunistic microorganisms due to the production of lactic acid, hydrogen peroxide (H_2O_2), bacteriocins, and other microbicidal substances[8]. In the vulva, the maintenance of acidity, either by vaginal acidity itself or by the cellular acidity, will help to maintain its balance[9].

The human body has two types of sweat glands: eccrine and apocrine. The sweat produced by the eccrine is made up of water and some minerals and therefore does not give off a great smell. The apocrine ones, which are responsible for eliminating unpleasant odors due to cellular metabolism, are present in some specific regions of the body: armpits, genital area, scalp and around the nipples. The sweat of the eccrine glands is composed of water, cellular metabolites and cellular debris, being eliminated through the hair follicle. Like the eccrine glands, the apocrine glands produce sweat initially with little odor, however, if it remains in the body for a long time, it can suffer changes due to the action of bacteria and fungi on its components. In addition to genetic factors[10], which determine the characteristics of the apocrine glands, other conditions can contribute to bad body odor, such as obesity, poor personal hygiene, excessive sweating, excessive alcohol intake, or some foods, such as onions, garlic and pepper.

The odor of the female genital organ results from the sum of some essential factors (**Table 2**):

- lack of body hygiene;
- cleaning and changing used clothing (underwear or not);
- vaginal infections or dysbioses (BV).

To avoid bad odor, daily genital hygiene is essential, mainly due to a large amount of sweating and cellular maceration due to friction and occlusion suffered by the genital area (vulva, perineum, perianal region and thighs). The regular use of slightly acidic substances can inhibit the growth of bacteria producing volatile substances responsible for the bad odor, still preserving the conditions of cellular homeostasis, especially of the vulva, which has an acidic pH, between 5.2 and 5.9[11].

Body odors fluctuate concerning to the menstrual cycle. In theory, the woman in the fertile phase could transmit a smell that would inform the man that she is more receptive to sex (pheromones). Although this is a proven mechanism among mammalian animals, the topic is still controversial in humans[12].

Among the different causes of bad body odor, foods rich in the amino acid "carnitine" are known to leave residues in the intestine, which have to be worked on by the natural microbiota. The bad odor, similar to the odor of fish, appears if some enzymes (flavin monooxygenases), responsible for breaking the waste down to an odorless state, are missing. For people with this particular type of odor, foods that are rich in lecithin and choline or carnitine/lysine should be avoided or reduced.

When the odor changes and it becomes strongly unpleasant (fishy smell), it is perhaps a sign of a vaginal infection. If this condition is not treated, it can cause organic problems, as well as emotional, social and sexual problems, for fear that another person may smell it[7,11].

How to avoid or minimize bad odor from the genital area

- Wash and dry the affected areas, using suitable hypoallergenic products, of low detergency and with acidic pH. Pay special attention to skin folds that are difficult to access (intergluteal fold, vulva and thigh roots).

Table 2 – Main causes of female genital bad odor.

Intrinsic	Extrinsic
Food	Poor genital hygiene
Bacterial vaginosis	Synthetic clothing
Vaginal trichomoniasis	Tight clothes
Cancer of uterine cervix	Pieces of toilet paper
Obesity	Foreign body in the vagina
Anxiety	Non-breathable sanitary pads
Accelerated metabolism	Imperceptible urinary incontinence
Excess of skin on the vulva	Hair accumulation

- Change underwear daily.
- Maintain a balanced diet.
- Avoid the use of synthetic fabric clothes that prevent aeration of the vulva.
- Use wet wipes with acidic pH when you do not have access to running water to perform intimate hygiene during the day.
- Seek medical gynecological treatment when there is a bad odor accompanied by vaginal discharge.
- Use, when indicated, vaginal acidifiers to prevent the growth of anaerobic bacteria that produce foul-smelling and volatile substances (**Table 3**).

Vaginal acidifiers

As mentioned above, vaginal pH ranges from 3.8 to 4.5 and vulvar pH from 5.1 to 5.9. This acidity observed in the vulva and vagina has the purpose of hindering the growth of harmful bacteria to the female genital mucosa, and consequently facilitating human reproduction. Despite this, several situations can destabilize the normal pH, causing dysbioses and discomfort for the woman. Menstruation, sexual intercourse, vaginal douching, accumulation of squamous cells, transudations and endometrial secretions can interfere with normal pH. Even though we know that the body makes use of compensation mechanisms, in many cases, this does not occur in a prompt and effective manner[13,14].

As the cases of vaginal dysbioses has become more and more frequent and the treatments usually recommended do not always solve the problem, the use of vaginal acidifiers has become more recurrent in order to rebalance the vulvovaginal pH[13].

Among the different possibilities, the use of lactic acid seems to be the most appropriate indication, because, in addition to promoting natural acidification, it also inhibit the growth of harmful bacteria and stimulate the immune response of the vaginal epithelium[14].

Table 3 – Main ways to combat vulvovaginal bad odor.

	Cause	Appropriate approach
1	Food	Decrease: chocolate, peanuts, nuts, raisins, cereals, eggs, soy products, corn, wheat germ. Increase: vegetables, rice and fruits - with fish or poultry.
2	Bacterial vaginosis/ vaginal trichomoniasis	Anaerobicide antibiotics (metronidazole or derivatives). Vaginal acidifiers.
3	Cervical cancer	Surgery/radiotherapy/antibiotics.
4	Obesity	Increase the frequency of hygiene and keep the vulva dry.
5	Poor genital hygiene	To use products with low detergency and acidic pH.
6	Synthetic clothing	Cotton panties/decrease the use of jeans.
7	Tight clothes	Natural fiber clothing with wide model during the day.
8	Pieces of toilet paper	Hygiene with baby wipes when running water is not available.
9	Foreign body in the vagina	Avoid using hygienic tampons, IUDs, pessaries, etc.
10	Non-breathable sanitary pads	To switch to breathable models or to suppress menstruation.
11	Imperceptible urinary incontinence	Physiotherapy/using breathable pads.
12	Hair accumulation	Leave the hair on the genital area ½ cm long.
13	Vaginal disbioses	Vaginal acidifiers after treatment or preventively in the post menstrual periods.

CONCLUSION

Many mysteries and taboos involve this topic that must be faced with an adequate basis by gynecologists and other professionals who attend women. Female genital malodor affects women's quality of life and should be investigated and treated accordingly.

Participation of each author

Paulo Cesar Giraldo: participated in the drafting of the article, in the critical revision of the article and in the final approval of the version to be published. Rose Luce do Amaral and Ana Katherine S. Gonçalvez participated in the critical revision of the article and in the final approval of the version to be published.

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Address for correspondence
PAULO CESAR GIRALDO
Department of Obstetrics and Gynecology, Faculty of Medical Sciences, Universidade Estadual de Campinas
Rua Alexander Fleming, 101 – Cidade Universitária
Campinas (SP), Brazil
CEP: 13083-880
E-mail: paulocesargiraldo@gmail.com

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