



## Vaginoses and Antecedent Antimicrobial Therapy

### KEYWORDS

vaginoses, vaginitides , antimicrobial therapy

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### ABSTRACT Introduction

Vaginal complaints are often a reason to visit the specialised clinics at the pre-hospital medical care. The interest to the cytolytic vaginosis (CV) and vaginal lactobacillosis (VLB) has increased. Little is known about the causes that lead to overgrowth of vaginal lactobacilli and to appearance of long lactobacilli formations.

#### Aim

To study the relation between vaginoses and the antecedent antimicrobial therapy (AAMT) in women with chronic vaginal complaints.

#### Materials and Methods

A total of 280 patients have been studied. The patients have been divided into two groups: 1. experimental -with AAMT (n=170), and 2. control - without AAMT (n=110). Research methods used: clinical, microbiological and statistical (variation analysis, graphical analysis).

#### Results and discussion

A study of 63 patients diagnosed with CV established a statistically significant difference between the examined group – 46 (73.02%) and the control group - 17 (26.98%) ( $p < 0.05$ ). Statistically significant difference between the examined and the control group was established and in cases of VLB. A statistically significant difference between AAMT and women with bacterial vaginosis, vulvovaginal candidiasis and aerobic vaginitis has not been established ( $p > 0.05$ ).

#### Conclusion

The study found a statistically significant difference between the patients with cytolytic vaginosis and vaginal lactobacillosis with an antecedent antimicrobial therapy and the control group.

### Introduction

Vaginal complaints are often a reason to visit the specialised clinics for obstetrics and gynaecology at the pre-hospital medical care (1, 2). Bacterial vaginosis (BV) is considered to be the “undisputed leader” among the causes of vaginal symptoms in common populations of women in childbearing age (3, 4). Over the past two decades the interest towards the cases of Cytolytic vaginosis (CV) and Vaginal lactobacillosis (VLB) has increased (5-8, 10). These two conditions have been well-defined as nosological units from a clinical and from a pathomorphological point of view (5, 9, 15) but little is known about their pathogenesis and about the causes that lead to overgrowth of vaginal lactobacilli and to appearance of long lactobacilli formations (5, 7, 9). Certain researchers suggest that antibiotics have a positive influence on the development of CV and VLB, but specific data – based on the results of targeted researches, – on the associated vaginoses – antecedent antimicrobial therapy (AAMT) has not been found in the literature.

### Aim

To study the relation between vaginoses and the antecedent antimicrobial therapy in women with chronic vaginal complaints.

### Materials and Methods

A total of 280 patients have been studied in the specialised Obstetrics and Gynaecology clinics at pre-hospital medical care (PHMC) who have been divided into two groups: 1. experimental group with AAMT (n=170), and 2. Control group without AAMT (n=110).

#### Inclusion criteria (experimental group):

- o non-pregnant women aged  $\geq 18$  years, not menopausal;
- o with chronic (over 3 months) vaginal complaints;
- o at least one full seven-day course in completed (oral and/or local, incl. antibacterial and antifungal medications) before the referent examination.

#### Exclusion criteria (experimental group):

- o pregnant women and women aged  $< 18$  years;
- o menopausal women;
- o women with acute clinical vaginitis;
- o without AAMT at least 6 months before the referent examination and testing.

Materials have been taken by the clinical expert at the Clinic for Obstetrics and Gynaecology during the exami-

nation and have been immediately transported under due conditions to the microbiological laboratory (MBL).

**Research methods used:**

Clinical: medical history – subjective complaints, registered in a sheet for primary data collection (SPDC): vaginal fluo-rine (VF); vulvovaginal pruritus; dysuria; dyspareunia. Ob-jective gynaecological status: inspection of vulvovaginal area; examination of pelvic organs (bimanual palpation); examination with speculum; transvaginal ultrasound. For the purposes of the research have been used pre-estab-lished standards for positive and, respectively, negative yellow test as well as three degrees of density of the vagi-nal discharge (VD).

Microbiological: microscopic – vaginal Gram staining and methylene blue test for quantitative assessment after: Nu-gent at al. (11) for BV; adapted system of Donders et al. for aerobic vaginitis (AV) (12, 13); original complex clinical-microbiological system for Vulvovaginal candidiasis (VVC); criteria of Cibley & Cibley (5) and of Horowitz et al. (9) for diagnosing CV and VLB; a complex of clinical, pathomor-phological and microbiological tests. Cultural – primary isolation of 5% blood agar; EMB agar; CHROMagar Can-dida; thioglycollate medium.

Identification: fast tests for aerobic and facultative an-aerobic isolates; conventional biochemical tests; tests for detection of virulence determinants; tests for sensitivity to antimicrobial discs with diagnostic value; immunochro-matographical test for T. vaginitis. Preceding identifica-tion of clinically significant fungal isolates of CHROMagar Candida; urease test; assimilation tests for accurate iden-tification of Candida non-albicans spp. (api® 20C AUX, bioMérieux 69280 Marcy l’Etoile, France). Statistical treat-ment of data.

The collected primary information was processed, coded and uploaded to the computer database. The primary grouping was made with maximum detail. Based on the primary grouping and after combining factorial with result-ant signs, a secondary grouping was made that was aimed at meeting the specific interest of the study. All data from the research has been processed with the software SPSS for Windows. The rich possibilities of medical statistics have been applied during the statistical treatment of data: Alternative analysis, Correlation analysis, Non-parametric analysis, ANOVA, Graphical analysis.

**Results and discussion**

Two decades have passed from the research held by Cib-ley & Cibley on CV, and the one held by Horowitz et al. on VLB. Those researches established the relation between the clinical condition and the appearance of a large num-ber of normal-sized lactobacilli as well as “exceptionally” long lactobacilli formations, but did not elaborate on the causes for this quantitative and morphological transforma-tion (5, 9). Sekor et al. as well as other authors suggest a correlation between occurrence of CV and VLB and treat-ment with antibiotics (14, 15). A study of 63 patients diag-nosed with CV and VLB (Table 1) established a statistically significant difference between the examined group with AAMT – 46 (73.02%) and the control group without AAMT - 17 (26.98%) (p<0.05).

**Table 1. Cytolytic vaginosis and AAMT**

	CV (-)			CV (+)			total	%	Sp
	n	%	Sp	n	%	Sp			
Without AAMT	93	42,86%	3,36%	17	26,98%	5,59%	110	39,29%	2,92%
With AAMT	124	57,14%	3,36%	46	73,02%	5,59%	170	60,71%	2,92%
<b>Total</b>	<b>217</b>	<b>100,00%</b>	<b>-</b>	<b>63</b>	<b>100,00%</b>	<b>-</b>	<b>280</b>	<b>100,00%</b>	<b>-</b>
<b>Pearson Chi-Square</b>									
	5,1574569	1	0,02						

Even more pronounced statistically significant difference between the examined and the control group was estab-lished in cases of VLB (p<0.001). In the examined group of 42 patients with VLB AAMT has not been registered in the SPDC in only 3 (7.13%), while such has been registered in 39 (92.86%) from all cases (Table 2).

**Table 2. Vaginal lactobacillosis and AAMT**

	VLB (-)			VLB (+)			total	%	Sp
	n	%	Sp	n	%	Sp			
Without AAMT	107	44,96%	3,22%	3	7,14%	3,97%	110	39,29%	2,92%
With AAMT	131	55,04%	3,22%	39	92,86%	3,97%	170	60,71%	2,92%
<b>Total</b>	<b>238</b>	<b>100,00%</b>	<b>-</b>	<b>42</b>	<b>100,00%</b>	<b>-</b>	<b>280</b>	<b>100,00%</b>	<b>-</b>
<b>Pearson Chi-Square</b>									
	21,402957	1	0,00						

A statistically significant difference between AAMT and cases of BV, VVC and AV has not been established (p>0.05) (Table 3, 4 and 5).

**Table 3. Bacterial vaginosis and AAMT**

	BV (-)			BV (+)			total	%	Sp
	n	%	Sp	n	%	Sp			
Without AAMT	79	36,74%	3,29%	31	47,69%	6,20%	110	39,29%	2,92%
With AAMT	136	63,26%	3,29%	34	52,31%	6,20%	170	60,71%	2,92%
<b>Total</b>	<b>215</b>	<b>100,00%</b>	<b>-</b>	<b>65</b>	<b>100,00%</b>	<b>-</b>	<b>280</b>	<b>100,00%</b>	<b>-</b>
<b>Pearson Chi-Square</b>									
	2,5081151	1	0,11						

**Table 4 Vulvovaginal candidiasis and AAMT**

	VVC (-)			VVC (+)			total	%	Sp
	n	%	Sp	n	%	Sp			
Without AAMT	85	38,81%	3,29%	25	40,98%	6,30%	110	39,29%	2,92%
With AAMT	134	61,19%	3,29%	36	59,02%	6,30%	170	60,71%	2,92%
<b>Total</b>	<b>219</b>	<b>100,00%</b>	<b>-</b>	<b>61</b>	<b>100,00%</b>	<b>-</b>	<b>280</b>	<b>100,00%</b>	<b>-</b>
<b>Pearson Chi-Square</b>									
	0,0942624	1	0,76						

**Table 5. Aerobic vaginitis and AAMT**

	AV (-)			AV (+)			total	%	Sp
	n	%	Sp	n	%	Sp			
Without AAMT	77	39,49%	3,50%	33	38,82%	5,29%	110	39,29%	2,92%
With AAMT	118	60,51%	3,50%	52	61,18%	5,29%	170	60,71%	2,92%
<b>Total</b>	<b>195</b>	<b>100,00%</b>	<b>-</b>	<b>85</b>	<b>100,00%</b>	<b>-</b>	<b>280</b>	<b>100,00%</b>	<b>-</b>
<b>Pearson Chi-Square</b>									
	0,0109307	1	0,92						

Figure 1 clearly shows the differences between prevalence rates of the studied nosological units in the examined group of patients with AAMT and the control group with-out AAMT. Those differences are highly pronounced in the cases of VLB and CV, with 92.86% against 7.14% and 73.02% against 26.98%, respectively.

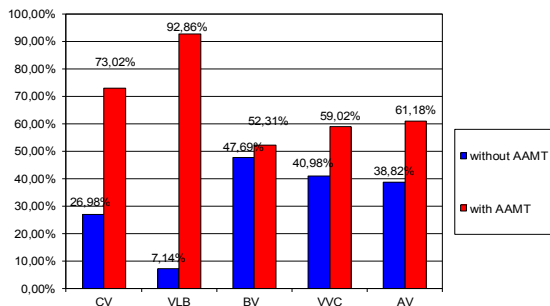


Fig. 1. Share of vaginitis and vaginosis with and without AAMT

The overall prevalence rates of the three types of vaginosis in the studied population with chronic vaginal symptoms do not show any significant differences (BV – 18.06%, CV – 17.50% and VLB – 11.67%) (Fig. 2). The average age of the examined patients with AAMT is 32.04 years with a standard deviation 8.711, and the average age of the control group without AAMT is 29.61 years with a standard deviation 6.527.

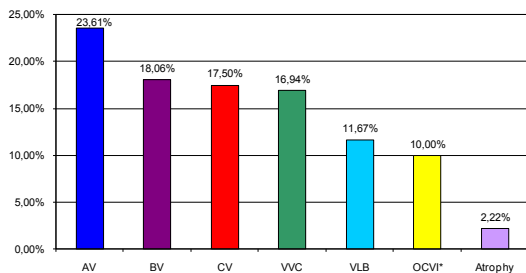


Fig. 2. Overall prevalence rates of the studied nosological units in women with chronic vaginal complaints \*OCVI – Other Cervicovaginal infections

**Conclusion**

The study found a statistically significant difference between the patients with cytolytic vaginosis and vaginal lactobacillosis with an antecedent antimicrobial therapy and the control group. Such a difference has not been found in patients with bacterial vaginosis, vulvovaginal candidiasis and aerobic vaginitis.

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