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SOCIETÀ ITALIANA DI MICROBIOLOGIA

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## **P 171 – ID 203 - Vaginal microbiota in HPV persistence: results of an observational, prospective study in a CIN2/CIN3 cohort of patients.**

Maria D'accolti<sup>1</sup>, Irene Soffritti<sup>1</sup>, Erica Santi<sup>2</sup>, Pantaleo Greco<sup>2</sup>, Gloria Bonaccorsi<sup>2</sup>, Carlo Contini<sup>3</sup>, Elisabetta Caselli<sup>1</sup>

<sup>1</sup>Section of Microbiology and Medical Genetics, Department of Medical Sciences, University of Ferrara, Ferrara, Italy; <sup>2</sup>Section of Obstetrics and Gynecology, Department of Morphology, Surgery and Experimental Medicine, University of Ferrara, Ferrara, Italy; <sup>3</sup>Section of Infectious Disease, Department of Medical Sciences, University of Ferrara, Ferrara, Italy.

**Introduction.** The vaginal microbiota is recognized to have an important role in preventing or favoring vaginal diseases. Based on NGS-based studies, 5 main community-state-types (CSTs) can be observed, most of which are dominated by *Lactobacillus* spp., whereas the CST-4 is characterized by scarce *Lactobacilli* and increased diversity of anaerobic bacteria. Such condition is often associated with bacterial vaginosis, that increases host susceptibility to different kinds of disease, including HPV infection and consequent development of associated cancer, where the inflammatory environment generated by vaginal dysbiosis has a favoring role. However, the impact of vaginal microbiota on HPV persistence after tumor excision is not clear, thus our study was aimed to clarify this point in a cohort of patients with CIN-2/CIN-3 histological diagnosis, treated with surgical excision (LEEP).

**Materials and Methods.** Eighty patients were enrolled after clinical diagnosed and characterization for HPV presence. Clinical specimens included vaginal swabs and washings, collected before surgical treatment, and at 6-month follow-up. Swab samples were analyzed by real-time PCR (qPCR) microarray, allowing simultaneous identification and quantitation of 90 bacterial and fungal species of the vaginal microbiota. Vaginal washings were in parallel used for the evaluation of pro-inflammatory cytokines, by ELISA test.

**Results.** Compared with the healthy population (10%), in the enrolled CIN2/3 cohort a high prevalence of CST-4 group was observed (33%), which also correlated with high-grade lesions, as 75% of patients within this group were CIN3 patients. Interestingly, differences were observed in the microbiota of patients showing HPV clearance or persistence after surgery, being *L. crispatus* increased in the HPV-cleared but not in the HPV-recurrent patients (where instead *L. iners* was most represented, together with *A. vaginae* and *U. parvum*). At least five different pro-inflammatory cytokines were detected in patients at enrollment (IL-1alpha, IL-1beta, IL-6, IL-8, TNF-alpha), whereas they were profoundly decreased in the HPV-cleared group at follow up.

**Discussion and Conclusion.** Collected results suggest a predisposing role of CST-4 for HPV infection, as well as its association with malignant progression of cervical cancer and HPV persistence. Comparison between HPV cleared and persistent patients evidenced different type of vaginal microbiota, with negative or positive role in HPV persistence, also associated with different patterns of pro-inflammatory cytokine profile, highlighting the important role of vaginal microenvironment in tumor outcome.