**SHIFT IN HIGH RISK HPV GENOTYPES IN CERVICAL LESIONS AND CANCER IN LATVIA.**

Liba Sokolovska1,2\*, Arta Spridzane1,3, Karina Biserova1,2, Daira Krisane2, Svetlana Gebrila1,2, Beatrise Orlova4, Marta Petrovska4, Ilze Lindenberga5, Dmitrijs Perminovs5, Juris Jansons 1,6, Androniks Mitildzans1,3, Jurijs Nazarovs2, Maria Isaguliants1.

1  Institute of Microbiology and Virology, Riga Stradins University, Riga, Latvia

2Pathology Institute, Pauls Stradins Clinical University Hospital, Riga, Latvia;

3Pathology Centre, Riga East Clinical University Hospital, Riga, Latvia

4 Centrala Laboratorija Ltd, Riga, Latvia, Riga, Latvia;

5 E. Gulbis Laboratory, Riga, Latvia;

6 Biomedical Research and Study Centers, Riga, Latvia

8 Eligens, Human Genetics, Digital Health, Riga, Latvia;

\*Presenting author

**Introduction**: Over a decade of active HPV screening and vaccination has changed the prevalence of high-risk HPVs (HR-HPV). HPV vaccination in Latvia started in 2010 with Cervarix, exchanged for Gardasil9 in 2020. This retrospective study aimed to determine changes in the dominant hrHPV genotypes in cervical dysplasia (CD) and cancer (CC) in Latvia from 2016 to 2024.

**Methods.** FFPE cervical tissue samples from patients with CD and CC were retrieved from the hospital repository. DNA was isolated with QIAamp DNA FFPE advanced UNG kit (Qiagen). HPVs were genotyped using Anyplex™ II HPV HR Detection kit (Seegene).

**Results**: Samples from 128 patients were retrieved, none were HPV vaccinated (over 12 years in 2010)(Table 1). Most were HR-HPV(+) – all CC and 90.2% (46/51) of CD samples. HPV16 was the most common, followed by HPV33. HPV56, HPV52, and HPV45 were found only in CC, and HPV31 and HPV66 - in CD. Samples were grouped: all and CC samples into 2016-2017, 2018-2019, 2020-2021, and 2022-2024, and CD samples into 2016-2018, 2019-2020, and 2021-2023 . HPV16 tended to decrease. The decrease was significant in CD – there were less HPV16(+) in 2021-2023 than in 2016-2018. HPV18 decreased overall, in CC and in CD, while HPV33 and HPV45 increased, in case of HPV33, significantly. There were more HPV33(+) overall and in CC samples in 2020-2021 and 2022-2024 than in 2018-2019.

**Conclusions**:

HPV16 is the most prevalent in the HPV-nonvaccinated. HPV16/18, which have been targeted by vaccines the longest, are decreasing in prevalence, while others are on the rise. HPV16/18 decrease might signify a herd effect and have opened a niche for other hrHPVs. Thus, the introduction of multivalent vaccines seems pivotal in protecting the next generations.

**Acknowledgments:** Latvian Science Council grant LZP-2021/1-0484.