

## Molecular Identification of Human Papillomavirus (HPV) in Cervical Smears and Parafin Embedded Tissue Samples from Women with Normal Epithelia, Low and High Grade Cervical Lesions and Cervical Cancer from the Bogota-Colombia

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### Summary:

#### Introduction

World wide cervical Cancer is the third type of cancer affecting women. Several studies showed that in cervical cancer hpv prevalence is close to 90%, demonstrating that hpv infection is necessary but insufficient for cervical cancer development. So, the development of molecular approaches to detect viral dna from oncogenic hpv types showed the benefit of diagnosing them in high grade lesions (cin-2 and cin-3), considered cervical cancer precursors. Since these molecular techniques are sensitive, reliable and consistent, they were evaluated as tools in secondary prevention strategies and also as approaches to studying the prevalence and incidence of the viral genotypes present in sexually active women.

#### Objective

To establish the prevalence of HPV infection in paraffin embedded samples and cervical smears obtained from women with normal cervical mucosa, high and low grade cervical lesions and cervical cancer.

#### Methods

All women belong to the public net for cervical cancer promotion and prevention program, bogotá and collected between 2015 and 2016. paraffin embedded samples were processed according to Tomassino et al. and also using the QIAamp DNA FFPE Tissue Kit. conventional PCR was used to amplify a region of the L1 gene from HPV using the my09/my011 primers. HPV positive samples were then genotyped using the linear array kit from Roche.

#### Results

A total of 3528 samples, including biopsies and cervical smears were analyzed. HPV prevalence was 34.3% (1211/3528). HPV 16 was the most prevalent genotype found in the analyzed population, reaching 42.4% of the samples, followed by HPV 58 (10.6%), HPV 52 (8.9%) and HPV 31 (6.8%). Single infections were detected in 54.8%, (663/1211). The highest HPV prevalence was observed in those women among 14 and 25 years old (22.5%; n=272). The highest HPV positivity was observed in those samples classified as CIN II and CIN III (58.9%; n=274). CIN II/CIN III samples also showed the highest proportion of oncogenic HPV types.

#### Conclusions

This is the first retrospective analysis of the HPV genotypes in the sexually active women population from Bogotá, Colombia. This information could contribute to the implementation of integrated actions in order to strengthen the Cervical Cancer Detection and Control Program from the Capital City.

#### Key Words

Cervical Cancer, Cervical Intra epithelial lesions, HPV, Molecular detection