

# HPV Infections in Patients with Multiple Sclerosis: a monocentric study

Brugnoni G.<sup>1</sup>, Landi D.<sup>1</sup>, Napoli F.<sup>1</sup>, Dionisi C.<sup>1</sup>, Mataluni G.<sup>1</sup>, Miscioscia A.<sup>1</sup>, Nicoletti C.<sup>1</sup>, Marfia G.A.<sup>1</sup>

<sup>1</sup>Multiple Sclerosis Clinical and Research Unit, Department of Systems Medicine, Tor Vergata University, Rome, Italy



## INTRODUCTION

Persistent Human Papillomavirus (HPV) infection represents a major risk factor for the development of cervical dysplasia and cancer. People with Multiple Sclerosis (PwMS) who are treated with Disease Modifying Therapies (DMTs) may face an increased risk of HPV infection (1), due to reduced immunosurveillance. Despite this concern, there is currently limited real-world evidence (2) regarding the prevalence and clinical impact of HPV infection among PwMS receiving DMTs.

## AIM

To describe the prevalence of HPV infections among PwMS followed-up at the MS center of Tor Vergata University Hospital in association with DMT exposure, Disease Duration (DD), age and sex.



## METHODS

A retrospective study was conducted on clinical records of MS patients followed-up at Tor Vergata Hospital. We investigated the prevalence of HPV infection and collected demographic, clinical and DMT history data. Association between the HPV infection event and age, sex, disease duration, and DMT class were evaluated through logistic regressions.

## RESULTS

Among patients with at least one visit between 2003 and 2025, we identified 164 individuals who underwent HPV-DNA test. Table 1 summarizes the demographic and baseline characteristics of the patients, as well as the results of HPV DNA testing. Univariate logistic regression showed that HPV infection was predicted by younger age ( $p = 0.003$ , odds ratio 0.943). However, this association was not retained in the multivariate model adjusted for disease duration, DMT class, and sex.

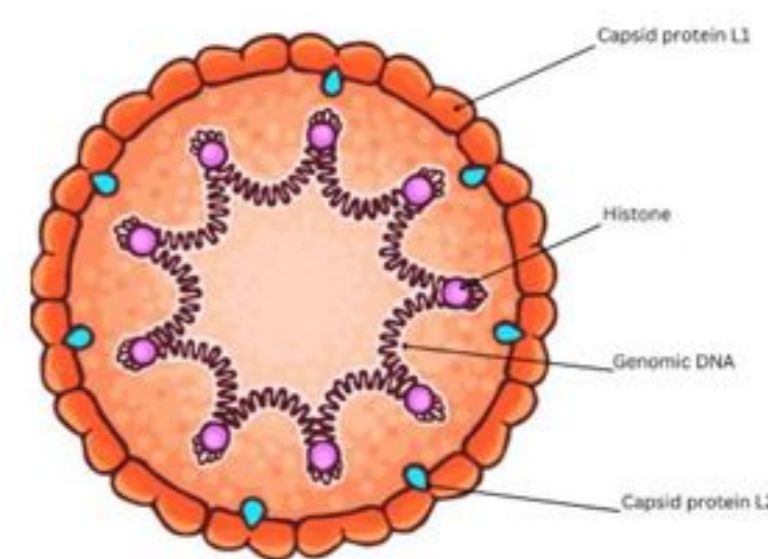
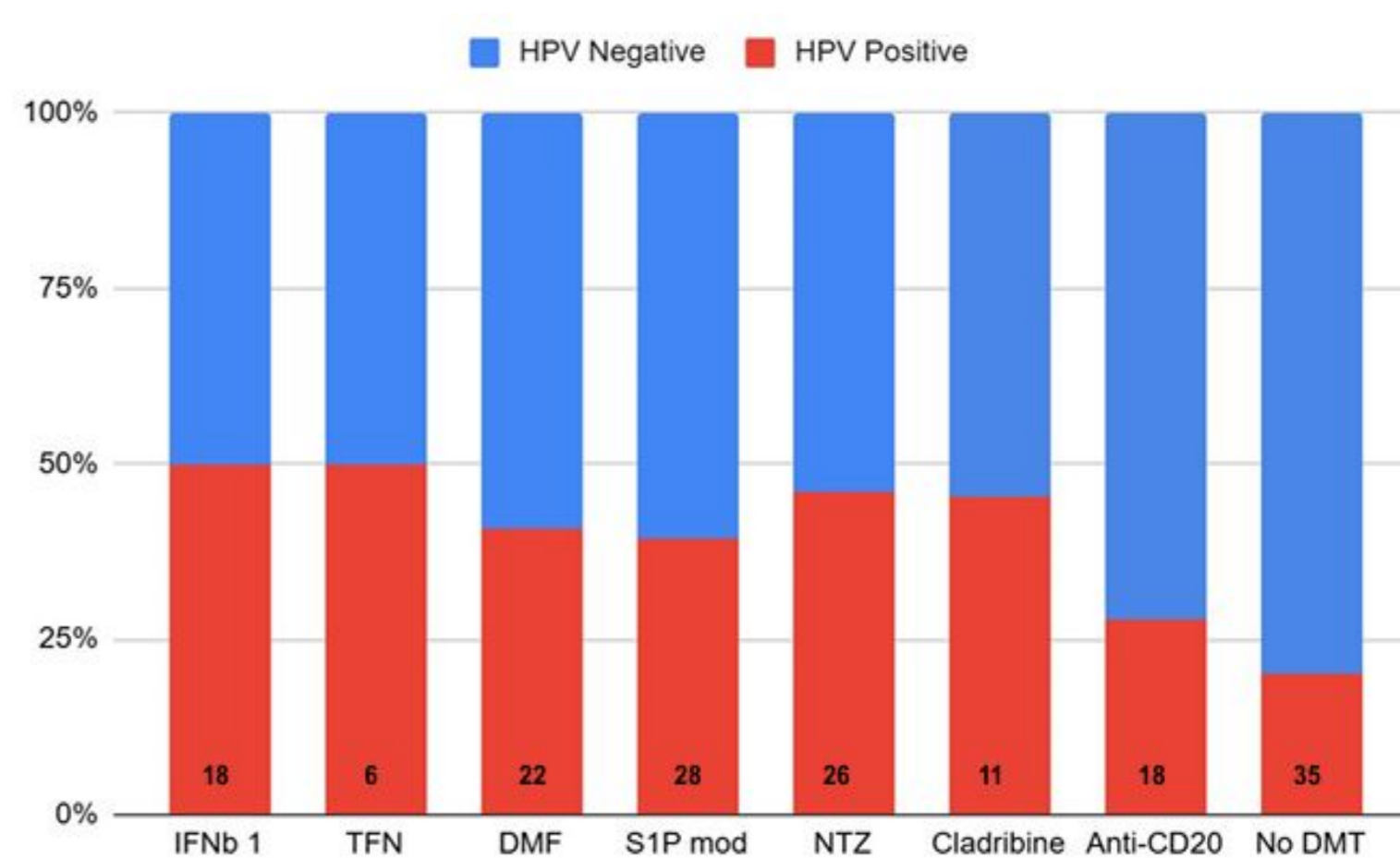


Fig.1 Human Papillomavirus

MS COHORT	N=164
Age (years, mean +/- SD)	39.01 (9.75)
Sex (F%)	98.78
Disease Duration (years, mean +/- SD)	7.51 (6.16)
Positive HPV-DNA test, n (%)	61 (37.2)
High-risk HPV genotype (HR-HPV)	28/61

Table 1 Demographic data and HPV-DNA test data

Table 2 Prevalence of HPV-DNA test across DMTs  
On the y-axis, the percentage of HPV-positive patients is shown, calculated with reference to all patients receiving each DMT. The x-axis indicates the absolute number of patients receiving the DMT.



## DISCUSSION AND CONCLUSION

In our cohort, we found a high prevalence of HPV infection, particularly among younger patients, and independent of DMT exposure. Although not statistically significant, likely due to the small sample size, we observed a lower incidence of HPV infection in patients receiving anti-CD20 treatment. This may reflect the predominant impact of anti-CD20s on humoral immunity, which is more relevant for bacterial rather than viral defense. Nevertheless, long standing treatment with immunosuppressants may heighten the risk of persistent infection and cancer. Our data highlight the need of proactive HPV screening and risk minimization by vaccination, as well as of specific counselling.

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