Annals of Diagnostic Pathology

Volume 30, October 2017, Pages 47-51

Cyclin D1 is significantly associated with stage of tumor and predicts poor survival in endometrial carcinoma patients

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Available online 20 April 2017.

https://doi.org/10.1016/j.anndiagpath.2017.04.006

Highlights

- Cyclin D1 expression is downregulated in endometrial carcinoma in comparison with noncancerous tissues.
- Tumor stage was significantly associated with cyclin D1 immunohistochemical staining.
- Poor survival behavior was correlated with loss of cyclin D1 immunoreactivity.

Abstract

Cyclin D1 overexpression has been described to have oncogenicrole and association with diagnosis, prognosis and survival in various tumors. This study will describe the immunohistochemical phenotype of cyclin D1, and investigate the correlation between these patterns of expression and clinicopathological parameters of endometrial carcinomas, to conclude the clinical relevance of cyclin D1 expression in the evolution of endometrial neoplasms. This study employed 101 endometrial tissue samples which include 71 endometrial carcinomas and thirty normal and benign endometriumcases. All these tissue samples were used in the assembly of tissue microarrays which have been utilized afterward in immunohistochemistry staining to detect cyclin D1 expression. Forty (56.3%) cases of endometrial carcinomas showed brown nuclear expression of cyclin D1 including 36 (61%) cases of endometrioid carcinomas, and 3 (33.3%) cases of serous carcinomas. Twenty three (76.6%) cases of control group demonstrated nuclear expression. High score cyclin D1 immunohistochemical staining has been significantly linked with patient age (P = 0.0001). Large proportion of high score cyclin D1 immunohistochemical staining was observed in females who are < 40 years of age while high proportions of negative staining were observed in older age groups. Histologic type of tissue was also significantly related to cyclin D1 immunohistochemical staining (P-value = 0.0001), high staining is more common in normal proliferative and secretory endometrium while serous carcinoma is more prevalent with negative staining. Stage of tumor was significantly associated with cyclin D1 immunohistochemical staining (P-value = 0.029), proportion of stage III and IV are higher in negative cyclin D1 immunostaining. Significantly higher proportion of high score cyclin D1 immunostaining is observed in controls while higher proportion of negative cyclin D1 immunostaining is observed among carcinoma cases (P-value = 0.0001). No significant associations between cyclin D1 immunohistochemical staining and grade, recurrence and alive status were observed. Significant different survival distributions were observed (P-value = 0.011) and poor survival behavior was correlated with negative cyclin D1 immunohistochemical staining. In conclusion, greater frequency of cyclin D1 expression was revealed in normal endometrial tissues in comparison with carcinomas. The distribution pattern of cyclin D1 immunoexpression suggests poor prognoses in endometrial carcinoma patients.

Keywords

Endometrial carcinomaImmunohistochemistryCyclin D1