

THE EFFECT OF TWIST EXPRESSION ON THE DEVELOPMENT OF CERVICAL CARCINOMA IN A GROUP OF IRAQI WOMEN INFECTED WITH HPV

Basim M. Khashman^{1*}, Kawakeb N. Abdulla¹, Saba J. Alhashimi², Mohammed M. Lafta¹
and Sarah N. Abdulwadood¹

¹National Cancer Research Center, University of Baghdad, Iraq.

²Medical College, University of Misan, Iraq.

*e-mail: basimkh@gmail.com

(Received 14 April 2019, Revised 27 June 2019, Accepted 9 July 2019)

ABSTRACT : Cervical carcinoma represent the second predominant cancer in female and there is a strong correlation between cervical cancer and the infection with high-risk types of HPV and expression the viral oncogenes. EMT is viewed as a vital advance in carcinoma development and ensuing metastasis. To evaluate correlation between the expression of Twist and HPV16 infection in a group of Iraqi patients with cervical carcinoma. A total of forty paraffin blocks included in this study which were divided into 30 sample of cervical cancer infected with HPV16 and 10 sample of normal cervical tissues. The samples were subjected to immunohistochemical technique using Anti-Twist2 polyclonal antibody. The obtained data from this study indicate that majority of the patients were positive for Twist2 expression and significant correlation of Twist 2 expression with HPV16 in cervical cancer with $p < 0.00001$. There is a strong correlation between HPV16 infection and Twist2 expression on the inducing of epithelia mesenchymal transitions process in cervical cancer.

Key words : Cervical cancer, twist, HPV16, Epithelial- Mesenchymal Transition (EMT).

INTRODUCTION

Globally, cancer is the second fatal reason and the Human papillomavirus (HPV) is associated with about 5% of all these cancers (Burd, 2003). Cervical carcinoma represent the second predominant cancer in female and there is a strong correlation between cervical cancer and the infection with high-risk types of HPV and expression the viral oncogenes (Zur Hausen, 2002; Syrjanen *et al*, 1992).

In spite of the fact that Papanicolaou (Pap) screening test is broadly utilized and prompts decrease in cervical malignant growth mortality, numerous patients with cervical carcinoma still died from metastasis. Accordingly, realization of the signaling pathways during cancer development is essential to understand cervical carcinoma (Lee and Shen, 2012).

Epithelial cells modify their phenotype to acquire mesenchymal-like characteristics through a process known as the epithelial-mesenchymal transition (EMT), EMT is recognized by loss of cell adhesion and polarity, and extended and expanded cell motility. The subsequent cells are capable of migration through detaching from the extracellular matrix and metastasis (Kang and Massagué,

2004). Epithelial tumor cells gain the motility required for invasion and movement to far off lesions by EMT (Christiansen and Rajasekaran, 2006; Huber *et al*, 2005). EMT is viewed as a vital advance in carcinoma development and ensuing metastasis. EMT likewise presents protection from anoikis and immune system control (Bao *et al*, 2013). The strategy for prevention of metastasis based on inhibition of EMT but the underlying regulation mechanism is still indistinct (Fan *et al*, 2015).

The implication of basic helix-loop-helix (bHLH) transcription factor, which is known as Twist, during embryogenesis had well established and recently Twist found to have an important role in the initiation of cancer by triggering epithelial - mesenchymal transition (EMT) leading to tumor invasion and metastasis (Qiao *et al*, 2017; Vesuna *et al*, 2017).

The activation of oncogenic Twist1 and Twist2 is fundamental for EMT and senescence; but little is important to understand more about the role of Twist1 versus Twist2 in prognosis, metastasis, and the underlying mechanism of cervical carcinoma (Wang *et al*, 2014).

The contribution of high risk types of Human papillomaviruses in the cervical cancer through the viral