The expression and significance of XIAP and C-jun on *Condyloma acuminatum*

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Abstract: Objective of the study was to investigate the expression and significance of XIAP and c-jun in *Condyloma acuminatum*. The immunohistochemistry SABC method was adopted to detect the expression of XIAP and c-jun in *Condyloma acuminatum*. The positive expression rate of XIAP and c-jun in *Condyloma acuminatum* was 80% (32/40) and 90% (36/40) separately and the intensity of expression was usually ++ ~ +++. While in control group, the positive expression rate of XIAP and c-jun was 27.8% (5/18) and 16.7 % (3/18) separately, and the intensity of expression was - ~ ++. There was statistical significance of the positive expression rate and the expression intensity of XIAP and c-jun between the two groups (P<0.05). Besides, the positive correlation existed between expression of XIAP and c-jun (r=0.306 P<0.01). The over-expression of XIAP and c-jun in *Condyloma acuminatum* may be associated with the growth of *Condyloma acuminatum*.

Keywords: *Condyloma acuminatum*, XIAP, C-jun.

INTRODUCTION

Condyloma acuminatum is a common sexually transmitted disease, with the clinical manifestations of genitals and benign biological at anus. Few of them could become into the potential of malignant tumor. The hyperplasia of *Condyloma acuminatum* is fast, and easy to relapse. It may be related to the *Condyloma acuminatum* organization existing in the abnormal cell proliferation and apoptosis. XIAP (X - linked inhibitor of apoptosis protein, XIAP) is one of the most effective apoptosis inhibiting factor. It makes caspase apoptotic pathways through inhibiting cell apoptosis; C-jun is a product of the gene protein expression, and has the function of regulating cell proliferation and differentiation. But it is lack of research on correlation between XIAP and c-jun in *Condyloma acuminatum.* This experiment had applied immunohistochemical SABC method to detect expression situation on apoptosis related proteins XIAP and c-jun in 40 cases and 18 cases of normal prepuce tissue, and discussed the possible function of both on the pathogenesis of *Condyloma acuminatum*.

MATERIALS AND METHODS

Research objects

The 40 cases of *Condyloma acuminatum* were from the dermatologist clinics of the first affiliated hospital of zhengzhou University, from September 2012 to June 2013. All patients were with typical clinical manifestations, *Condyloma acuminatum*, diagnostic criteria, without other systemic diseases and treatment before checking in our hospital. Among the 40 cases, there were 28 cases of male, female 12 cases, ages 18~59 years old, the mean age of 28.4~10.3 years old; In the control group, there were the normal foreskin tissue from 18 cases of adult male from our hospital uropoiesis surgical department for circumcision.

Reagents and methods

Rabbit XIAP polyclonal antibody (concentrated), rabbit polyclonal antibody against c-jun (concentrated) were purchased from American Santa Crus company; SABC detection kits, and DAB chromogenic reagent kit (concentrated) were purchased from Beijing Zhongshan golden bridge biotechnology company, XIAP and c-jun detection were using immunohistochemical SABC method, experimental steps were carried out in accordance with the kit instructions.

Judgmental results

XIAP positive expression were in the cytoplasm and cell membrane of cells, c-jun mainly expressed in the cell nucleus, positive color was light yellow granular or tan particles. The grading standard was from reference literature (Buerkle *et al*., 2002). According to the tinting strength and percentage of positive cells in tissue section, then did the semi-quantitative classification Tinting strength grade classification: no coloring for 0 point, light yellow for 1 point, yellow for 2 point, tan for 3 point. The percentage of positive cells: 10% or less for 0 point, 11% ~ 25%, 1 point, 26% ~ 50% 2 point, 51% ~ 75%, 3 point, and 76% or higher for 4 point; Taking the product of the above two points as the total points: the negative (-): 0 point, weakly positive (+): 1~4 point, positive (+ +): 6~8 point, strong positive (+ + +): 9~12 points.

STATISTICAL ANALYSIS

Data obtained had gone through the corresponding processing and the SPSS17.0 statistical software was used for χ^2 test and Spearman correlation analysis.

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RESULTS

XIAP in Condyloma acuminatum tissues and the expression of normal prepuce

XIAP positive expression was in the cell cytoplasm and cell membrane, the positive color was light yellow granular or tan particles. In 40 cases of *Condyloma acuminatum* group, 32 cases were positive expression, the positive expression rate was 80%, the expression intensity is ++ ~ +++, positive cells showed diffuse or focal distribution, more apparent in the stratum spinosum expression (see fig. 1). 18 cases of normal tissue, 5 cases of XIAP expression positive, positive expression rate of 27.8%, expression strength for more - ~ ++ (see fig. 2). Positive expression rate of the two groups was statistically significant (χ^2=14.675, P<0.001), the expression of two groups of strength difference was statistically significant (H = 18.488, P<0.001). (See table 1).

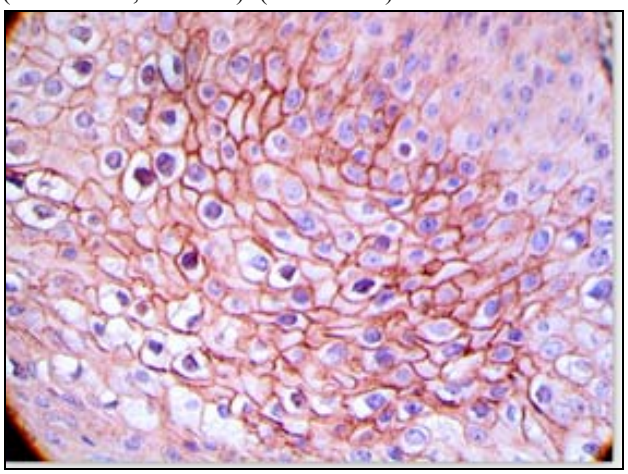

Fig. 1: The expression of XIAP in *Condyloma acuminatum* (SABC×400).

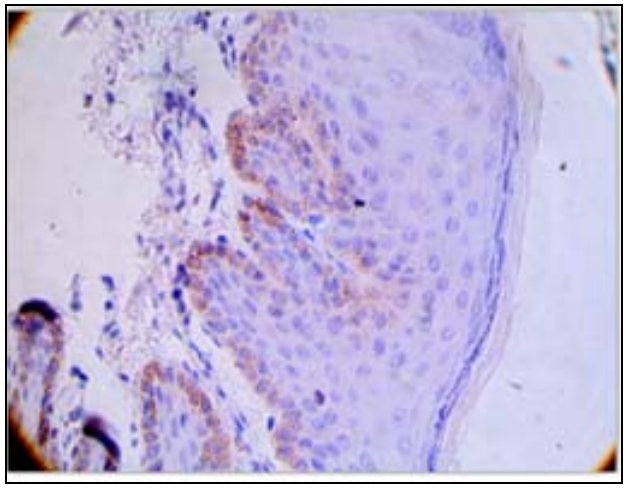

Fig. 2: The expression of XIAP in normal foreskin tissue (SABC×400).

C-jun expression in the Condyloma acuminatum tissue and normal prepuce

C-jun mainly expressed in the cell nucleus, positive color is light yellow or tan particles. In 40 cases of *Condyloma acuminatum* group, 36 cases of c-jun positive expression, with positive expression rate of 90%, the expression intensity was ++~+++, the positive cells mostly distributed in epidermal layers except corneous layer (see fig. 3). 18 cases of normal control group, there were 3 cases of c-jun positive expression, and the positive expression rate was 16.7%, in expression strength was - ~ ++, mainly distributed in the basal layer (see fig. 4). The positive expression rate of the two groups was statistically significant (χ^2=30.307, P<0.001), the intensity of positive expression difference was statistically significant (H=28.633, P<0.001). (see table 2). table 2 *Condyloma acuminatum* and normal foreskin tissue c - the expression of jun.

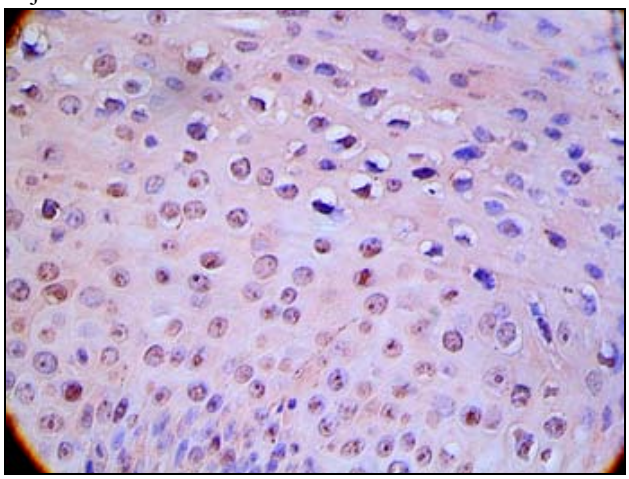

Fig. 3: C-jun in the expression of acuteness wet wart (SABC×400).

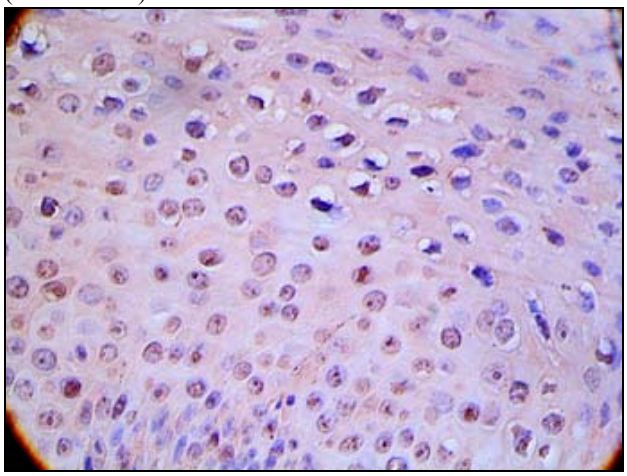

Fig. 4: C-jun in the expression of normal prepuce tissue (SABC×400).

XIAP and c-jun expression in Condyloma acuminatum group correlation analysis

In 32 cases of XIAP positive, with 30 cases of c-jun positive, 2 cases of negative and positive in 36 cases of c-jun, 30 cases of XIAP is positive, negative, 6 cases by Spearman rank correlation analysis found that XIAP was positively correlated with c-jun (r=0.306, P<0.01). (See table 3).

Table 1: *Condyloma acuminatum* and normal foreskin tissue XIAP expression

Group	Case Qty	Expression intensity				*H*	*P*
		-	+	++	+++		
Condyloma acuminatum group	40	8	3	13	16		
Control group	18	13	3	2	0	18.488	<0.001

Note: χ^2=14.657, *P*<0.001

Table 2: C-jun expression in condyloma acuminatum tissue and normal foreskin tissue

Group	Case Qty	Expression intensity				*H*	*P*
		-	+	++	+++		
Condyloma acuminatum group	40	4	4	12	20		
Control group	18	15	2	1	0	28.633	<0.001

Note: χ^2=30.307□*P*<0.001

Table 3: XIAP and c-jun Correlation Analysis

XIAP	C-jun		r	P
	+	-		
+	30	2		
-	6	3	0.306	0.004

DISCUSSION

XIAP, also named X-linked inhibitor of apoptosis protein, was considered to be the most potential inhibitory active protein in IAPs family. It could directly combine with and inhibit Caspase molecules and perform the biological function in inhibiting apoptosis (Lu *et al*., 2007). This study had shown that (Zhang and Yue, 2012) XIAP had excessive expression in most human tumors, such as endometrial carcinoma, esophageal cancer, pancreatic cancer, non-hodgkin's lymphoma and lung cancer, XIAP was closely related to the occurrence and evolution of the tumor. This study used immunohistochemical SABC method to detect XIAP expression in the *Condyloma acuminatum* group, results had shown the strength and expression rate of the expression of XIAP in *Condyloma acuminatum* were higher than control group (P<0.001). It indicated that the excessive expression of XIAP in *Condyloma acuminatum* tissue might be responsible for the abnormal proliferation of *Condyloma acuminatum*, in a certain extent, might inhibit *Condyloma acuminatum* tissue cell apoptosis.

Proto-oncogene c-jun was among bZip (basic leucine zipper) protein, the c-jun along with other members of the proteins family formed homologous dimers or heterologous dimer of transcription factors activate protein-1 (the activator protein-1, AP-1) (Grondin *et al*., 2007). C-jun / AP-1 have many important functions in cell biology activity, involving in apoptosis, proliferation and differentiation and development and tumorigenesis (Sherriln *et al*., 2011). This study found that c-jun expression in *Condyloma acuminatum* the intensity and expression rate were higher than control group (P<0.001). The excessive expression of c-jun excessive involved in the onset of the *Condyloma acuminatum* process through promotion cell proliferation and apoptosis inhibition of cells in *Condyloma acuminatum* tissues.

CONCLUSION

The over-expression of XIAP and c-jun in CA may be associated with the growth of CA. Our research indicated that the expression of XIAP and c-jun in *Condyloma acuminatum* tissue were positively correlated, prompted XIAP and c-jun might have synergy in the process of the *Condyloma acuminatum* onset. Both promoted the occurrence and development of *Condyloma acuminatum*, while, the exact pathological mechanism still needs further research.

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