

# The Expression of Fas, FasL and Its Significance in Hepatocellular Carcinoma

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**Abstract Objective** To inquire the relationship between the expression of Fas, FasL, and pathological and clinical features of hepatocellular carcinoma(HCC). **Methods** Fas, FasL were detected by the immunohistochemical dyeing in the 41 specimens of HCC. **Results** The positive expression ratio of Fas, FasL in HCC was 31.71%, 41.46% respectively, while that in paracancerous cirrhosis tissue was 80.00%, 65.00% respectively. The expression ratio of Fas in HCC was less than that in paracancerous tissue significantly, the expression ratio of FasL between HCC and paracancerous tissue was not statistical difference. The expression of Fas & FasL had no relationship with sex, HCC size, and the grades. The expression of Fas was related with the emboli in portal vein adversely. **Conclusion** This results implicate that the expression of Fas/FasL play a important role in the tumor evasion, and the mechanism of Fas in emboli in portal vein of HCC is worthy of further research.

**Key Words** liver neoplasm; Fas, FasL; immune evasion

Fas and Fas ligand(FasL) constitute Fas system. Fas is a kind of signal receptor which may induce cell apoptosis, the interaction of Fas and FasL can induce cell apoptosis, and this has close relationship with immune evasion and immunochemotherapy. In order to inquire its clinic significance of Fas system in the development of primary hepatocellular cancer, we studied the expression of Fas and FasL by the immunohistochemical method.

## MATERIAL AND METHODS

**Tumor samples:** 41 specimens of hepatocellular cancer (HCC) derived from the patient who underwent surgical resection between 1994-1999 in Shandong cancer hospital, Jinan, Confirmed by pathology. The 20 specimens in control derived from paracancerous cirrhotic tissue. 10 normal liver specimens came from needle biopsy. The patient who underwent. Classified by Edeman: grade I 8 cases, grade II 12 cases, grade III 14 cases, grade IV 7 cases.

**Reagents and Immunohistochemical staining:** Fas and FasL antibody were purchased from Sant company, concentration 1:200, 1:100 respectively. The 41 specimens of the HCC resected surgically, respectively made immunohistochemical dyeing with SABC methods after fixed by 10% formalin, embedded by paraffin wax, and continuous section at 4 $\mu$ m. Replacing the primary antibody with PBS made the negative contrast.

**Judgement of results:** Fas, FasL were transmem-

brane protein, the cell of which membrane or plasma was brown was positive cell. calculate the positive cell in 400 cell under 400 light microscopy, the positive cell rate more than 10% was positive, otherwise negative.

**statistical analysis:** related debases was statistical analysis by t or  $\chi^2$  analysis.

## RESULTS

The positive dyeing of Fas, FasL in HCC was located in membrane and cytoplasm with the positive expression ratio 31.71%, and 41.46% respectively, while that of paracancerous cirrhosis tissue was located chiefly in membrane with the positive expression ratio 80%, 65% respectively. The expression ratio of Fas in HCC was less than that in paracancerous tissue significantly ( $p < 0.05$ ), the expression ratio of FasL between HCC and paracancerous tissue was not statistical difference ( $p > 0.05$ ). The expression of Fas & FasL had no relationship with sex, HCC size, the grade. The expression of Fas was related with the emboli in portal vein adversely, while The expression of FasL has no relationship with it. (table 1-3)

## DISCUSSION

Recently, it was found that the expression of Fas in malignance was reduced or lost in solid tumor. By which the malignan tumor may evade the clearance of Fas system<sup>[1]</sup>. The latest research demonstrate that neoplasm evade immune surveillance not only by the reduced Fas

**Table 1** expression of Fas、 FasL and classification in hepatocellular carcinoma

grade	n	Fas positive rate	FasL positive rate
I	8	37.50% (3/8)	50.00% (4/8)
II	12	33.33% (4/12)	50.00% (6/12)
III	14	28.57% (4/14)	28.57% (4/14)
IV	7	28.57% (2/7)	42.85% (3/7)

$P > 0.05$

**Table 2** The relationship between the expression of Fas and clinic features

clinic features	Fas		total	positive rate (%)	P
	-	+			
sex	male	19	9	28	32.14
	female	9	4	13	30.77
cancer emboli	have	2	9	11	81.82
	no	26	4	30	13.33
size	>5cm	22	10	32	31.25
	<5cm	6	3	9	33.33

**Table 3** The relationship between the expression of FasL and clinic features

clinic features	Fas		total	positive rate (%)	P
	-	+			
sex	male	17	11	28	32.29
	female	7	6	13	46.15
cancer emboli	have	8	3	11	27.27
	no	16	14	30	46.67
size	>5cm	17	15	32	46.88
	<5cm	7	2	9	22.22

expression passively but also by killing the immune active lymphocyte positive<sup>[2]</sup>.

Our study suggested that Fas expressed in both hepatocellular cancer and paracancerous tissue, but the expression ratio of Fas was lower in HCC than paracancerous tissue. Hepatocellular cancer cell escaped from the host immune surveillance to survive by the reduced expression of Fas and FasL, the apoptic cell became fewer and the proliferative cell clone survive. The research of Pan G found that Fas-negative cells, but not Fas-positive cells, were able to produce tumors when subcutaneously injected into nude mice. These findings suggested that Fas may be a candidate oncogene involved in the pathogenesis of cholangiocarcinoma<sup>[3]</sup>.

Postoperative metastasis in liver was an important recurrence reason, it was also an important factor in poorly prognosis. Our study found that the expression of Fas was related with the emboli in portal vein adversely. The research of Moller P found that reduced/lost Fas expression was more frequent in tumors that had already metastasized<sup>[4]</sup>. Our study was the same with

them.

The metastasis of Malignant tumor is a complicated course, in the course the evasion immune surveillance maybe play a important role. The hepatocellular cancer cell evasion immune surveillance to survive may has some relation with Fas expression.

## REFERENCES

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