

Topoisomerase II Alpha (TopoII α) As A Prognostic Biomarker In Hepatocellular Carcinoma

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OBJECTIVES

Hepatocellular carcinoma (HCC) is resistant to chemotherapy and did not show survival benefits after systemic combination chemotherapy. This make the search for any biomarker is extremely important to predict the response in this dull disease.

Purpose: We conduct this study to evaluate the relation between Topo II α level in the liver tumor tissue and response to therapy. Correlation between clinical and pathological features and overall survival relevant to expression TopoII α may help as a prognostic and predictive biomarker in unresectable HCC.

(Table 1) Correlation Between Topoisomerase II Alpha Expression And Response To The Therapy:

Topoisomerase II Alpha expression	Response			Total No.
	SD No%	PD No%	PR No%	
-ve	16 51.6	15 48.4	0 0	31
+ve	5 26.3	6 31.6	8 42.1	19
p-value	0.07	0.24	0.001**	

METHODS

The study included 50 unresectable HCC patients, who were diagnosed and treated in the NCI, Cairo University. The mean age was 54.5 years; 47 of them were males and 3 females. Doxorubicin 50 mg/ m² every 3 weeks was given for 3 cycles and the response was evaluated according to Response Evaluation Criteria in Solid Tumors (RECIST).

RESULTS

Over expression of TopoII α was found in 19/50(38%) and was negative in 31/50(62%). No CR was seen after treatment with doxorubicin, while PR was 8/50(16%), SD 21/50(42%) and PD 21/50 (42%). There was a significant correlation between Topo II α **and** the response to the chemotherapy (P=0.001) (Table1) . The study showed significant correlation between Topo II α and OS; 8 months for over expression compared to 20 months in negative expression (figs1).

Survival Benefit

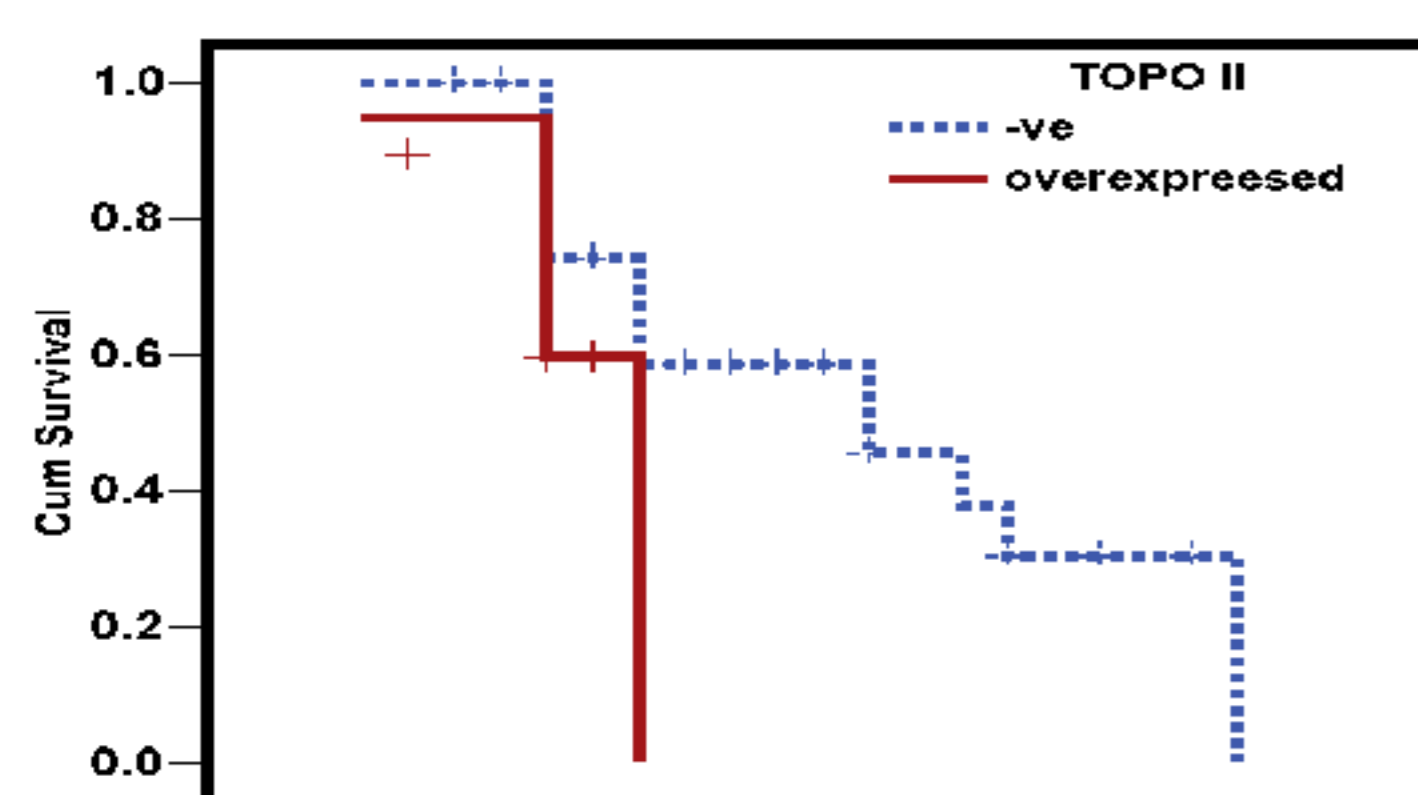
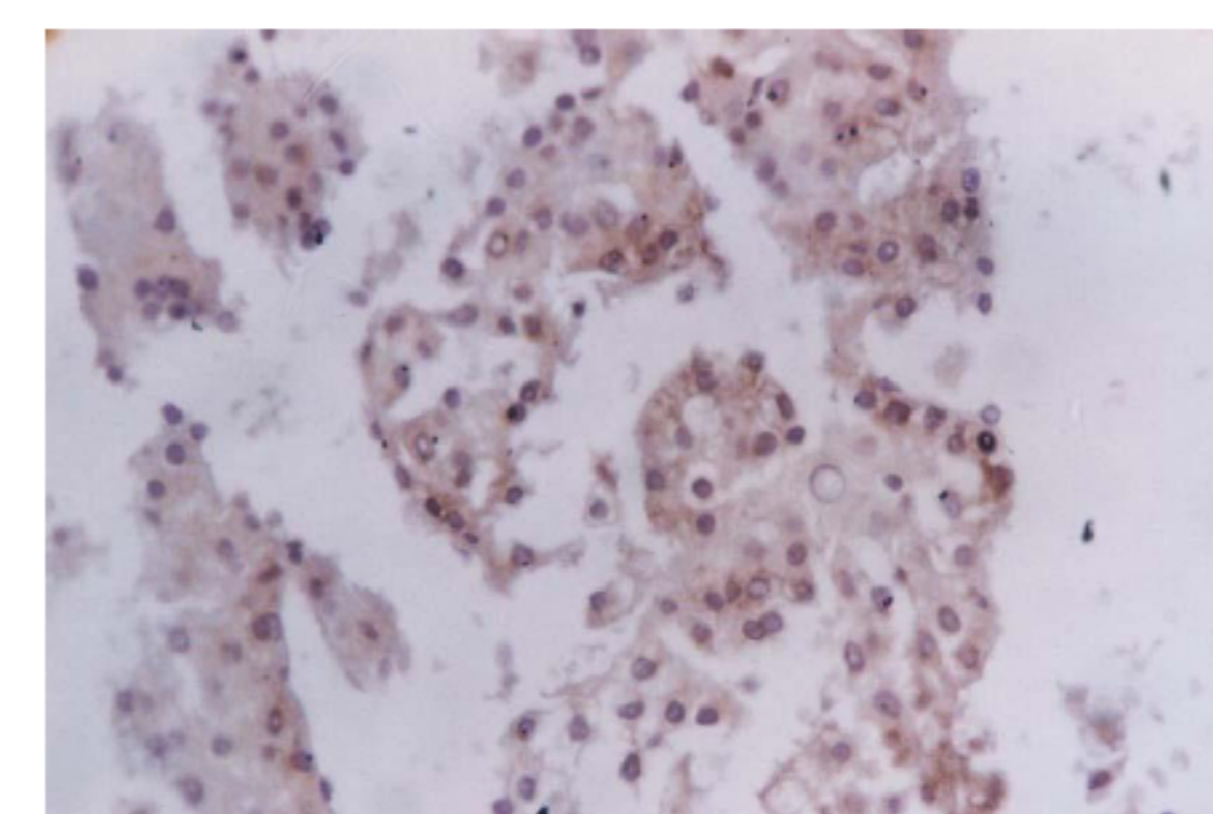
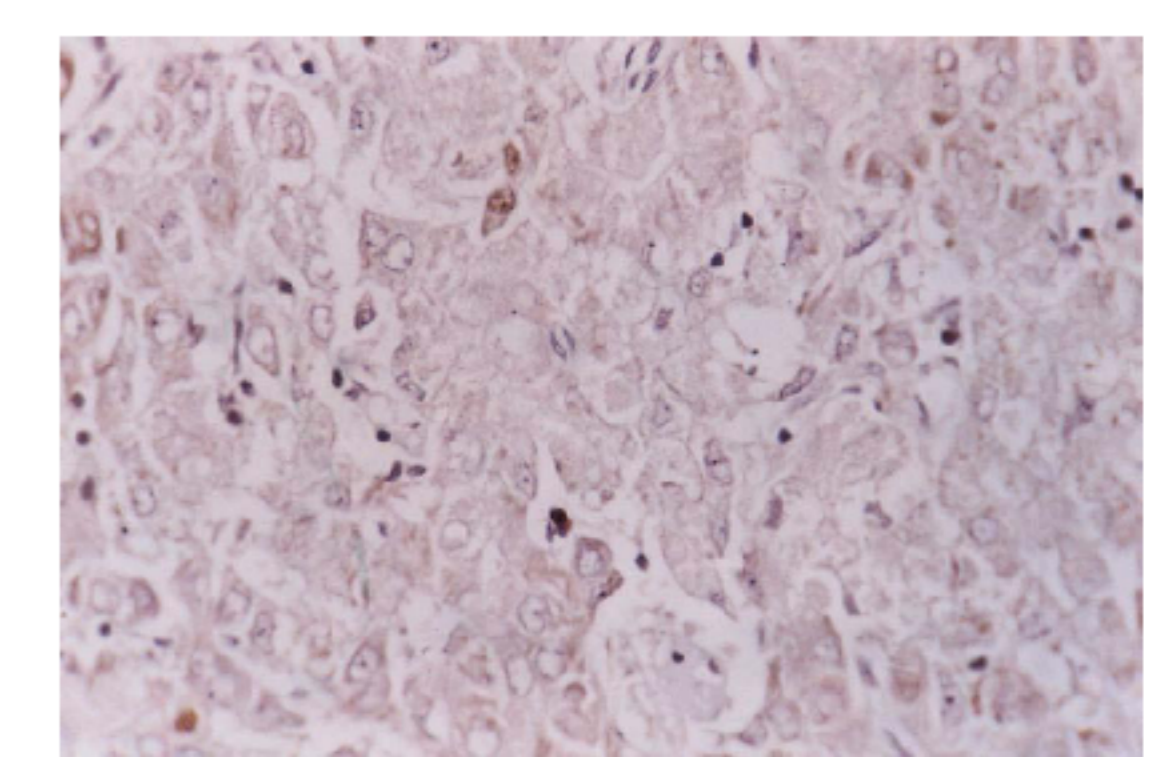


fig.1) The Overall survival (OS) in 50 HCC according to Topo II alpha over expression; In negative group the median OS was 14 months and 8 months in positive group (p=0.001)



(sec.2) Nuclear & cytoplasmic reaction for TopoII α (X-100 DAB chromogen)



(sec.1) Focal nuclear positivity of TopoII α (X-200 DAB chromogen)

CONCLUSIONS

Conclusion:

Detection of Topoisomerase II α level in liver tissue showed a significant correlation to both response to therapy and survival in 50 HCC patients. Topo II α is a promising prognostic and predictive factor that may reflect an aggressive behavior as seen with less survival in positive group but it represents a good response to therapy. With further studies in the near future Topoisomerase II α together with others factors as tumor size, pathological grade may help for more personalized therapy in HCC.

