

## 8. SUMMARY

### THE EFFECT OF CURCUMIN ON APOPTOSIS IN EXPERIMENTAL FIBROSARCOMA MODEL

Adnan Menderes University, Medical Faculty, Biochemistry AD, 09100-Aydın

Fibrosarcoma is a soft tissue sarcoma. It is reported that the density of visibility is %2-3 and the rate of remain alive is %50. The methods of local removal, radiotherapy and chemotherapy which are used in treatment can't be successful everytime. Apoptosis is a cell death which is programmed. Bcl-2 and Bax are proteins which belong to Bcl family and they mediate apoptosis. Bax protein has apoptotic effect and Bcl-2 protein has antiapoptotic effect. In cancer treatment, the clearance of taking cancerous cell to apoptosis composes the strategy of basic treatment. The fact that curcumin has apoptotic effect and is usage for the purpose of cancer treatment because of this effect is natural molecule which has been searched in recent years. The aim of this study is investigation apoptotic effect of curcumin on fibrosarcoma and whether expression of Bcl-2 and Bax proteins changed.

24 Wistar Albino male rats were taken in this study. Rats were divided into four groups: Control group (n=8), fibrosarcoma group (n=6), Fibrosarcoma + curcumin treatment group (n=5) only curcumin group (n=5). Fibrosarcoma model was formed by applying 3-Methylcholantren (3-MC) to fibrosarcoma and fibrosarcoma + curcumin treatment groups. Then fibrosarcoma + curcumin treatment group and only curcumin group were given 200 mg curcumin for each rat via gavage for ten days. To fix apoptosis, apoptotic cell counting was done by being used TUNEL method in tissue sections. Expression of Bcl-2 and Bax proteins were fixed by being used Western Blot and immunohistochemical methods.

It was found that in comparison with fibrosarcoma group, apoptotic cell increased significantly in fibrosarcoma + curcumin group ( $p=0.006$ ). It was seen that there was no difference between the group which was only applied for curcumin and control group ( $p=0.448$ ). It was also seen that curcumin treatment reduced Bcl-2 protein expression importantly in fibrosarcoma ( $p=0.068$ ). But it was not significant statistically. Bax expression not changed in fibrosarcoma + curcumin treatment group, comparison to fibrosarcoma group ( $p=0.223$ )

Results which we gained in our study show that curcumin has strong apoptotic effect on fibrosarcoma tissue, Bcl-2 expression plays part in this effect, but

different mechanisms have an influence on apoptotic effect of curcumin because of decrease in Bcl-2 expression isn't as powerful as increase in apoptotic cell number. Besides, curcumin doesn't form apoptotic/antiapoptotic effect or necrosis in normal tissue. It is necessary that further studies must be done in different doses and periods with radiotherapy and chemotherapy and curcumin must be used in fibrosarcoma for the purpose of treatment in these further studies.

**Keywords:**

Apoptosis, fibrosarcoma, Bcl-2, Bax, curcumin.