Atorvastatin Medullar Thyroid Cancer Over Tt Cell Line Impact Of Apoptosis And Calcitonin Over Gene Expression

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Medullar thyroid cancer (MTC) constitutes 5% of thyroid cancers. 25% of MTC are familial. Mutations activating “germ-line” in RET protooncogene are responsible from genetic inheritance. RET mutation causing tyrosine kinase activation result in oncogenic cell proliferation. Persistent and recurrence disease management is complicated in medullary thyroid cancer because it is unresponsive to chemo, radio and radioactive iodine therapy. Agents targeting thyrosine kinase and RET receptor activity can be used in this case. Tyrosine kinases inhibitors have potential to stabilize metastatic disease, but has no effect on survival, they have many serious side effects. Many studies show that statins, inhibit cancer growth by inhibiting HMG Co A reductase through supressing mevolonate pathway. In the present study, through TT cell line we investigated atorvastatin’s apoptotic impact in MTC cells and also it is effect on calcitonin gene expression.

TT cell were treated with varying doses of atorvastatine (12.5-25-50-60-70-80-90-100-125-150-200 µM). IC 50 values at 24 hrs was 90 µM, at 48 hrs was 80 µM, at 72 hrs was 80 µM. The apoptotic effect of atorvastatin was evaluated according to caspace 9 activity. Compared to controls atorvastatine increase caspace 9 activity 1.27 times at 24 hrs, 1.660 times at 48 hrs and 1.716 times at 72 hrs. Calcitonin gene expression decreased 1.377 times at 24 hrs, 7.290 times at 48 hrs and 8.494 times at 72 hrs after treating with atorvastatine when compared with controls.

The result of this study show that atorvastatine increases apoptosis in TT cell line depending on dose and duration, decreases calcitonin gene expression. In conclusion atorvastatine which has low side effects may be a remedy for advanced MTC patients.

Key words: Atorvastatin, TT cell line, Apoptosis, Calcitonin