Chemoresistance and apoptosis induction in head and neck squamous cell carcinoma
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Background: Resistance to apoptosis plays an important role in cancer therapies such as chemotherapy and radiation; whereas molecular processes for avoiding apoptosis mechanism are mostly unknown. A conventional therapy by HNSCC (head and neck squamous cell carcinoma) is a cyclic application of the cytostatic drug Paclitaxel. Usually a tumor recurs after chemotherapy.

Method and Materials: Human HNSCC cell lines were treated with Paclitaxel to induce apoptosis. Apoptosis induction was quantified by flow cytometry and western blot analysis. The processing and activation of caspase 3 was used as a read out system for Paclitaxel induced apoptosis.

Results: Paclitaxel induced programmed cell death in each treated HNSCC cell line. Nevertheless in every experiment at least some cells avoided cell death and finally survived.

Conclusion: These Paclitaxel resistance subpopulation could be cancer stem cells and should be further analyzed related to stem cell characteristic and their tumor inducing potential.