230-P. INTESTAMIN® INHIBITS PROLIFERATION AND INDUCES DIFFERENTIATION IN COLORECTAL CARCINOMA AND ADENOMA CELL LINES

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Rationale: Intestamin®, a new immunoenhancing enteral nutrition supplement for critically ill patients, contains high amounts of glutamine-dipeptides and antioxidants as well as tributyrine. The effects of Intestamin® on proliferation, differentiation and apoptosis and the underlying intracellular mechanisms were investigated in colorectal cell lines.
Method: The colorectal carcinoma cell lines HT29 and SW620 and the adenoma cell line Geki-2 were incubated with standard medium supplemented with Intestamin (1.25%-10%) for 24h to 72h. Proliferation was assessed by cell counts. Cell cycle distribution and rate of apoptotic cells were determined by FACS. Cellular differentiation was estimated by alkaline phosphatase (AP) levels. In addition, the expression of various factors of cell cycle control and apoptosis were investigated by western blot.
Results: Proliferation was inhibited in time and dose dependently. Compared to untreated controls, treatment with Intestamin® (5% Vol, 24h) resulted in a decrease in proliferation to 68%±5% (HT29) and 74%±7% (SW620). However, this was neither reflected in changes of the cell cycle distribution nor in an increased rate of apoptotic cells.
In HT29 and SW620 cells, AP levels increased time and dose dependently from 3U/l to 30U/l and 28U/l to 71U/l in HT29 (10% vol, 72h) and SW620 (2.5% vol, 72h), indicating an increase in cellular differentiation. Except for an increase of p21 protein levels in HT29 and SW620 cells, no modulation of the examined factors (PCNA, p53, cdk-2, bcl-2, and bax) could be detected.
Conclusions: Intestamin® did not have proliferative effects on the investigated cell lines. On the contrary, a decrease of proliferation and an increase of cellular differentiation were noted. Further studies are needed to dissect the differential effects of the various substances included in the preparation.