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Inhibition of rosiglitazone on high glucose and advanced glycation end products induced proliferation in colorectal cancer cells

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Some epidemiological studies found that diabetes incidence rates of colorectal cancer was significantly higher than non-diabetic population. The receptor for advanced glycation end products (RAGE) was originally identified and chararized based on its ability to bind advanced glycation end products (AGEs), which were permanently modified protein derivatives forming glucose and fructose by nonenzymatic glycation and cxidation reactions and further irreversible rearrangements in diabetes. Recent studies showed that AGEs-RAGE was closely associated with carcinogenesis. This study aims to study whether rosiglitazone can inhibit SW480 from high glucose and advanced glycation end products induced proliferation. 45 cases of colorectal cancer tissue and adjacent tissues, 25 cases of colorectal cancer with diabetes and adjacent tissues specimens were analyzed for RAGE and AGEs expression using immuohistochemistry. Western blot of COX-2, NF-κB and Cyclin E in SW480 group, SW480 treated by advanced glycation end products group, SW480 treated by high glucose and advanced glycation end products group had carried out. Then cell viability, proliferation and apoptosis was used to measure MTT, BrdU and Annexin V, treatment of rosiglitazone were repeated with those groups after 72h. The results indicated that RAGE was highly expressed in colorectal cancer tissues and colorectal cancer with diabetes , but RAGE of colorectal cancer with diabetes adjacent tissues was higher than colorectal cancer adjacent tissues, which associated with deterioration of prognosis. Advanced glycation end products could increase cell viability, cell proliferation and decrease cell apoptosis in SW480, The expression of COX-2, NF-κB and Cyclin E were up-regulated by advanced glycation end products, Which effects of advanced glycation end products have increased in high glucose. However rosiglitazone could partly down-regulate the expression of COX-2, NF-κB and Cyclin E which un-regulated by advanced glycation end products under high glucose condition, and rosiglitazone could decrease cell proliferation and increase cell apoptosis induced by advanced glycation end products under high glucose. . The data from the current study suggest that targeting of RAGE expression by Rosiglitazone could effectively control colorectal cancer with diabetes in the future.

Biography

Huasheng Liang, molecular biologist, graduated from Institute of Endocrinology and Metabolism disease, Southern Medical University in 2010. As a director he worked for Institute of Endocrinology and Metabolism disease, Ninth Affilicated Hospital of Guangxi Medical University, Beihai,Guangxi, P. R. China. Provided scientific and technical support of research activities to lab research projects, working with mouse models, cell culturing, immunoblotting, Bio-plex cytokine assays, immunopreciptation, flow cytometry, etc.. In recent year he focused on the diabetes and Cancer and got some important success. In some cancer and diabetes model, he can eliminate some cancer were induced by high glucose.

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