The Beneficial Effect of Active Hexose Correlated Compound (AHCC), a Health Food Component, in Patients with Pancreatic or Biliary Tract Cancer who Underwent Chemotherapy

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[Introduction] We have shown that an oral intake of Active Hexose Correlated Compound (AHCC), a functional food component isolated from a basidiomycete, was associated with enhanced immune function in healthy volunteers and with the improved prognosis in hepatocellular carcinoma patients (Nutrition and Cancer 2008, and J Hepatol. 2002, respectively). Although recent cancer chemotherapy has made a significant advance with improved efficacy, there is a concern to control its side effects with a high incidence. The alleviating effect of AHCC against side effects of chemotherapy has not been assessed so far. Here, we investigate whether an oral intake of AHCC alleviates the side effects caused by chemotherapy in the patients with pancreatic or biliary tract cancer.

[Methods] This study is an open-label, non-randomized phase II study. Unresectable/postoperative patients with histologically or cytologically proven adenocarcinoma of pancreas or biliary tract, who underwent chemotherapy with gemcitabine, were studied. Twenty to eighty years old patients with ECOG performance status (PS) of 0 or 1, and adequate organ function were included in this study. Gemcitabine was given intravenously at a dose of 1,000 mg/m^2 over 30 min once a week for three weeks, followed by 1 week of rest. Patients were divided into two groups which were given AHCC (AHCC group) or not (control group). The assessment of hematological and non-hematological toxicity was performed over two months during the chemotherapy. Adverse events were monitored according to the National Cancer Institute Common Terminology Criteria for Adverse Events version 3.0.

[Results] From Dec 2007 to Jan 2009, seventy-three patients were enrolled prospectively in this study. AHCC group consisted of 37 cases and control group consisted of 36 cases. The ratio of pancreatic and biliary tract cancer in each group was as follows: AHCC group was 33 to 4 and control group was 33 to 3. There were no differences between two groups in the clinical background and the baseline levels of hematological examination. The hemoglobin (Hb) level after chemotherapy in AHCC group was significantly higher than in control group (10.3 g/dl (7.3-12.6) vs 9.2 g/dl (5.3-12.7), $p<0.05$). In addition, the C-reactive protein (CRP) level after chemotherapy in AHCC group was significantly lower than in control group (0.47 mg/dl (0.02-17.5) vs 2.30 mg/dl (0.05-20.2), $p<0.05$). The serum albumin level after chemotherapy in AHCC group was significantly higher than in control group (3.8 g/dl (2.6-4.4) vs 3.5 g/dl (1.9-4.0), $p<0.05$). No differences were seen in morbidity of neutropenia, thrombocytopenia, and hepatic dysfunction between the two groups. The taste alteration after chemotherapy in AHCC group was significantly lower than in control group (16% vs 56%, $p<0.05$).

[Conclusions] It is suggested that AHCC could alleviate side effects of chemotherapy and that the nutritional state during chemotherapy might be maintained by improving the taste alteration. The further clinical trials will be necessary to clarify the beneficial effect of AHCC.