Breast Cancer: Current Research

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Grape seeds effect against den induced liver cancer

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Abstract

This study was conducted to assess the anti-tumour properties of grapeseed extract (GSE) against chemically-induced liver cancer. Administration of different doses of GSE significantly inhibited foci formation as well as decreasing the number and the area of placental glutathione-S-transferase in livers of tumour-induced rats by approximately 4 and 10-fold deductions, respectively. The extract also induced apoptosis and down regulated histone deacetylase activity and inflammation makers, such as cyclooxygenase 2, and inducible nitric oxide synthase expressions in liver. It also induced differential cell cycle arrests and decreased the viability of HepG2 cells and induced early and late apoptosis through activating caspase-3 and Bax.

Introduction

Therapeutic interventions in nonalcoholic fatty liver disease are limited, while anti-oxidative materials have shown benefits in animal models. This investigation planned to assess grape seed extricate as an enemy of oxidative material in this procedure. Helpful impacts of grape seed remove were assessed in contrast with nutrient C in a twofold visually impaired setting. Fifteen patients were enrolled in each group. Liver capacity tests were done; likewise, evaluation of steatosis and example of echogenicity of the liver were resolved. Patients were followed up by a similar assessment rehashed in first, second and third months. Mean age +/- standard deviation was 43.2 +/- 10.3 years. Grape seed remove (GSE) fundamentally improved the evaluation of greasy liver change; and brought about critical abatement in alanine aminotransferase in patients getting the concentrate contrasted with those acceptingnutrient C freely, from the underlying evaluation of steatosis. This examination depicts the gainful impact of utilizing grape seed remove for a quarter of a year in patients with nonalcoholic greasy liver ailment. These outcomes may improve with a more drawn out period.

Materials and Methods

The diagnosis of NAFLD was based on clinical examinations, elevated level of liver enzymes, and evaluation of the liver by ultrasonography and excluding other etiologies for fatty liver. None of the patients had any malignancy or inflammatory disease.A nitty gritty history was taken and patients with history of liquor utilization or utilization of meds known to encourage steatohepatitis, lipid-decreasing operators, ursodeoxycholic corrosive or nutrient enhancements in the six months prior to the study were excluded. Laboratory evaluation in this study included serum liver tests for AST, ALT and alkaline transaminase (ALT) and alkaline phosphatase (ALP).

Further examinations incorporated a hepatobiliary framework ultrasound, viral serology, autoantibody titers, serum iron, ferritin and transferrin immersion, ceruloplasmin and pee copper levels. All patients were negative for hepatitis B serological tests, antibody to hepatitis C virus and autoantibodies (antinuclear antibody [ANA], anti-mitochonfrial antibody [AMA], anti-smooth muscle antibody [ASMA] and anti-LKM). Serum electrolytes, urea, creatinine, fasting glucose, complete blood count, cholesterol and triglyceride levels were also obtained. Iron profile, a1-antitripsine and serum ceruloplasmin levels were ordinary in all patients.

Then, patients with continuous NAFLD were included in this study. They were given a code name and were referred to receive the medication randomly They got either GSE or nutrient C (1000 mg for each 12 hours, Zahravi Pharm., Iran) randomly. Serum biochemistry and ultrasonographic measurement of liver and spleen were performed at entry and every month.

Crushed grape seeds (Vitisvinifera) were extracted in 95% ethanol with mechanical agitation for 2 to 3 hours, and this process was repeated twice. The organic solvent was then evaporated, and the crude extract was partitioned between H 2 O and n-hexane to separate lipoid compounds. The aqueous solution was evaporated to dryness using rotary evaporator (40°C) to yield approximately 2.6 g of extract/100 g of seeds and was filled in 100 mg capsules to be used orally in the present study. [8] Moreover, all of the patients received advices for necessary modifications of life style, particularly to do exercises, take appropriate diet or additional medications when necessary.

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MOLECULAR CHARACTERIZATION OF THE GRAPE SEED AGAINST LIVER CANCER

Hepatocellular carcinoma (HCC) remains a leading cause of cancer-related death both in developed and under-developed countries1. Chronic infection with hepatitis B and C are the main causes of HCC2. Other factors that contribute to the formation of HCC include fatty liver disease, iron overload, alcoholism and exposure to environmental carcinogens 3. One of the most common carcinogens is diethylnitrosamine (DEN), which is widely used in the surrounding of everyday life, in tobacco, smoke, processed food, gasoline, and cosmetics 4.Chemoprevention of cancer especially by natural compounds is a promising strategy to protect against various stages of cancer development 5, 6, 7. Total plant extracts have been of a particular interest mainly because of the synergistic effects of the cocktail of plant metabolites and their multiple points of intervention during chemoprevention7, 8. The development of pre-neoplastic foci of altered hepatocytes (FAH) was exploited as short-term bioassays to assess the chemopreventive potential of natural products against cancer formation9. Thus, inhibiting or suppressing the development of pre-neoplastic FAH by natural products may lead to diminishing the subsequent progression to liver cancer. One particular plant product that has gained much attention is grape seed extract (GSE). Grapes (Vitisvinifera) are rich in polyphenols, with 60–70% of grape polyphenols being found in the seeds, which are available as a nutraceutical agent. The consumer's interest in GSE has been primarily due to its high content of antioxidants in the form of flavonoids, polyphenols and proanthocyanidins10, 11. GSE has been shown to possess potent cardioprotective, hepatoprotective, antidiabetic, anti-mutagenic and anti-inflammatory properties10, 11, 12. Moreover, GSE has shown promising chemopreventive and anticancer effects in various cancer cells and in a wide variety of animal tumor models such as skin, colorectal, prostate and breast cancers13, 14, 15. So far, limited efforts have been set forward to investigate, mainly in vivo, the effect of GSE against liver cancer16, and 17.

Biography

Amr Amin is an alumni workforce at UAE University who regulated many alumni theories. He earned his PhD from University of Illinois at Chicago and received a postdoctoral training at University of Pennsylvania School of Medicine. His lab studies roles of natural products in the treatment and prevention against cancer. He serves on the editorial boards and as a reviewer of many international journals and he is also the recipient of many national and international awards**.**