

Garlic extracts working in concert with docetaxel to suppress the growth of androgen independent (AI) prostate cancer

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Androgen independent prostate cancer (AIPC) is an end stage prostate cancer characterized by bone metastasis and with few therapeutic options. Docetaxel has been shown recently to have significant effect on treatment of AIPC but unfortunately the strategy, though significant statistically, was modest with only about 2.5 months in survival advantage due to intolerance and resistance to docetaxel therapy. Recently we have shown that garlic extracts such as SAC (S-allylcysteine) and SAMC (S-allylmercaptocysteine) could effectively suppress the proliferation, migration and invasion of AIPC cells under in vitro condition (Chu et al. 2006). This inhibitory effect was associated with induction of mesenchymal to epithelial transition. More importantly, the SAC and SAMC treatment led to restoration of E-cadherin expression while the expression of E-cadherin repressor, Snail, was downregulated. We have also studied the effect of these compounds on prostate cancer under in vivo condition using CWR22R, an AI prostate cancer xenograft in nude mice. The results showed that treatment with the garlic derivatives inhibited the growth of CWR22R without any detectable toxic effect on nude mice. The SAC and SAMC induced growth reduction was correlated with a reduction in serum PSA level and proliferation rate of xenografts (Chu et al. 2006). Our latest study revealed that SAMC could sensitize the action of docetaxel on AIPC under both in vitro and in vivo conditions. Overall our results suggest that these garlic derivatives may be potential therapeutic agents for the suppression of AI prostate cancer either alone or as a potent adjunct to docetaxel therapy for AIPC patients. Combination of garlic extract with docetaxel may allow lowering of the latter dosage, thus enhancing the effectiveness of docetaxel on one hand while reducing the toxicity on the other hand. [Supported by AICR (05A006-REV2) and RGC grants (HKU7478/03M) to XHW and YCW (HKU7490.03M, 7470/04M, NSFC/RGCN HKU738/03, HKU Foundation Seed Fund, 03)].

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Analysis and standardization of the anastomoses between the segmental branches of the portal hepatic vein. Study on corrosion casts

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The right and left branch of the portal hepatic vein are placed into the fissures of the venous segmentation of the hepatic parenchyma, areas considered as paucivascular from the point of view of the elements forming the efferent pedicle of the liver (hepatic veins and their affluents). The right branch of the portal hepatic vein gives birth to the anterior and to the posterior branch. From the umbilical portion of the left branch arise the medial branches and the lateral branches. The lateral branches (superior and inferior) go to the left lateral division (S II and S III), the medial branches go to the left medial division (S IV), the anterior branch goes to the right medial division (S V and S VIII) and the posterior branch goes to the right lateral division (S VI and S VII). Numerous authors described liver's parenchyma segmentation based on the terminal character of the branches of the portal hepatic vein. All the same, in the anatomical literature anastomoses between the segmental branches of the portal hepatic vein are described in the normal liver. In order to demonstrate the anastomoses between the segmental

branches of the portal hepatic vein in the normal liver, we analyzed 100 hepatic corrosion casts (from persons without previous liver disease). The livers were injected with plastic (AGO II paste and TECHNOVIT 7143), followed by hepatic parenchyma corrosion with hydrochloric acid. We found 16% cases with anastomoses between the branches of the portal hepatic vein. In 12% cases the anastomoses were intersegmentary (mostly unique anastomosis in 91.67% cases, 11/12 casts, and in one case out of 12 two intersegmentary anastomoses – 8.33% cases). In 4% cases we found anastomoses between portal branches of the same segment (intra-segmentary anastomoses). In case of portal intersegmentary anastomoses, in 50% cases (6/12 casts) was involved a portal branch belonging to segment IV. The portal intersegmentary anastomoses most often intersected the plane of the right portal fissure (58.33% cases, 7/12 casts). In case of the 4 portal intra-segmentary anastomoses, 50% (2/4 casts) were located in the parenchyma of the segment VIII (one between two branches of III-rd order and the other between a branch of the III-rd order and the posterior branch of the hepatic portal vein). The overall analysis of the intraparenchymal distribution of the anastomoses of the branches of the hepatic portal vein showed 11 morphological types of distribution in the case of portal intersegmentary anastomoses. The analysis of the position of the portal anastomoses at the level of each portal fissure shows the following: at the level of the umbilical fissure, both the anastomoses between the segmental branches S II – S IV and S III – S IV are situated anterior to the trunk of the left hepatic vein; at the level of the main portal fissure the anastomoses between the segmental branches S IV – S V and S IV – S VIII are situated next to the anterior aspect of the trunk of the middle hepatic vein; at the level of the right portal fissure the portal anastomoses between S V – S VII and S VII – S VIII are situated in a plane superficial to the trajectory of the right hepatic vein (single or multiple). Knowing these aspects of morphologic interrelation between the branches of the hepatic portal vein at intersegmentary level could facilitate the planning of surgery for liver resection or transplant.

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