

O-27: PHASE II STUDY OF POMEGRANATE JUICE IN PROSTATE CANCER PATIENTS AND ITS PHARMACOKINETICS AND METABOLISM IN HEALTHY VOLUNTEERS

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Our preliminary cell culture studies show that pomegranate juice (PJ) has anticancer properties. We conducted a phase II study with 40 men with rising PSA after surgery or radiotherapy with PJ (8 oz; 136 mg ellagitannins, ETs) daily until disease progression. Clinical endpoints included serum PSA levels and serum-induced proliferation and apoptosis of LNCaP prostate cancer cells. Mean PSA doubling time increased from 15 to 37 months with treatment. Pre- and post-treatment serum decreased growth and increased apoptosis of LNCaP cells. To investigate the pharmacokinetics of PJ ETs, 18 healthy subjects ingested PJ (6 oz concentrate, 318 mg ETs), and blood (over 6 h) and urine (days -1, 0 and +1) were collected. Ellagic acid was found in plasma at C_{max} of 18.64 ng/mL and T_{max} of 0.98 h. Several ET-metabolites were also found in plasma and urine but with considerable inter-individual variability. We synthesized several ET-metabolites which showed pro-apoptotic and antiproliferative effects against prostate cells in vitro. In conclusion, although PJ ETs are poorly absorbed, their metabolites may persist in vivo and contribute to PJ's anticancer effects. This is the first clinical trial with PJ in prostate cancer patients and the first pharmacokinetic details of PJ ETs in human subjects.