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# Comparision of Retinol Plasma Levels in Patients with Bladder Cancer and Healthy Volunteer with HPLC-DAD Methods after a Single Oral β-Carotene Administration

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The disease-preventing activity of β-carotene could be ascribed either to their conversion into retinoid or to their activity as intact molecules.The aim of study were to develop and validate a simple, precise, accurate and specific HPLC-DAD method for determination of retinol from human plasma and to examine whether retinol levels of patients with bladder cancer are increased or decreased when compared to healthy volunteers after a single oral administration of 20 mg of β-carotene. The chromatographic conditions of the HPLC-DAD methods using vitamin $K_2$ as the internal standard (IS) were optimized. Retinol and IS were extracted into n-hexane and chloroform containing butylated hydroxytoluene solvent system.The method has a wide linear over the 0.5-10 µg/mL of concentration range (the endogenous retinol has a concentration of approximately 0.79µg/mL). The precision (RSD %) of this method was less than 7.9%, and accuracy (RE) was better than ± 9.1 (n=6). The developed and validated method could be successfully applied to determination of retinol measured in plasma samples (one milliliter blood samples were collected at 0 (before dosing) and 2.5 h after dosing) from six healthy volunteers and six bladder cancer patients following oral administration of single dose of β-carotene. Obtained data in this study were compared by Student-t test (at 95% coeffidence level). There is no significant difference between plasma concentration of retinol of healthy volunteers and bladder cancer patients (for 0 h; $t_h$=1.374; P>0.05, for 2.5 h; $t_h$=0.208; P>0.05).