Letter to the Editor

SLCO Transport Genes in Prostate Cancer—Letter

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A report by Wright and colleagues evaluated genetic variation in SLCO1B3 and SLCO2B1 versus outcomes in prostate cancer (1). Their major findings were as follows: (i) SLCO1B3 and SLCO2B1 were highly expressed in castration-resistant prostate cancer metastases versus untreated controls; (ii) no single-nucleotide polymorphisms in SLCO2B1 or SLCO1B3 were related to the risk of prostate cancer recurrence/progression; and (iii) SLCO2B1 (rs12422149A>G; “A” allele) and SLCO1B3 (rs4149117) were related to increased risk of prostate cancer–specific mortality (PCSM).

In 2008, we showed that a SLCO1B3 polymorphism (rs4149117; Ser112Ala) resulted in decreased testosterone import and that OATP1B3 (encoded by the “A” allele) was overexpressed in prostate tumors versus normal tissues; we recently validated the latter result (2, 3). Subjects with prostate cancer carrying 112Ala also had slower disease progression during androgen deprivation therapy (ADT) and improved overall survival after prostate cancer diagnosis (2, 4). Larger studies by Wright and colleagues (1) and Yang and colleagues (5) are consistent with our findings where OATP1B3 112Ala is again related to slower prostate tumor progression on ADT and improved castration-resistant prostate cancer survival.

Data pertaining to SLCO2B1 polymorphisms are not consistent. Yang and colleagues (5) showed that DHEA uptake and growth rate were greater in cells expressing OATP2B1 312Glu (encoded by the rs12422149 “G” allele in SLCO2B1) than in cells expressing the 312Arg isoform (encoded by the “A” allele). Men carrying the “G” allele also had shorter time to progression during ADT that was attributed to increased intratumoral DHEA. On the other hand, Wright and colleagues did not observe a difference in progression whereas they did observe an increased risk of PCSM with the “A” allele (instead of the “G” allele).

Wright and colleagues state that the difference between the studies arose because they were studying eugonadal men whereas Yang and colleagues studied castrated men. Because Wright and colleagues evaluated PCSM, it is likely that the vast majority of these men did actually receive castration therapy prior to death, still, there was a greater proportion of men with GA or AA alleles in the PCSM cohort. Moreover, Wright and colleagues included men progressing following prostatectomy or radiation therapy into the progression cohort with those receiving ADT; Yang and colleagues only evaluated progression on ADT.

Therefore, the relationship between the SLCO1B3 rs4149117 single-nucleotide polymorphism and prostate cancer outcomes is consistent with previous data presented by us (2, 4, 5), and data pertaining to SLCO2B1 polymorphisms are not consistent.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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References


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