Reviewer’s report

Title: Circulating endothelial cells are an early predictor of tumor response in renal cell carcinoma patients treated with sunitinib

Version: 3 Date: 9 December 2009

Reviewer: James W Mier

Reviewer’s report:

1. Major compulsory revisions - none
2. Minor essential revisions - none
3. Discretionary revisions - none

In this paper, Beutel et al analyzed blood samples obtained serially from patients with metastatic renal cell carcinoma (RCC) undergoing treatment with sunitinib and normal controls for circulating endothelial cells (CEC), monocytes, and levels of soluble VEGFR2 in an effort to determine if any of these parameters correlated with treatment response. CEC are thought to be a manifestation of endothelial injury, the alleged mechanism of action of drugs that block VEGFR signaling. The authors observed that the RCC patients had higher baseline CEC counts than controls and that those that responded to sunitinib had a 2-fold increase in the CEC count during the first cycle of treatment. Those who did not respond generally had stable CEC counts. Monocyte counts declined by roughly half in all patients regardless of treatment response but those who had higher baseline numbers were more likely to fail treatment. sVEGFR2 levels also decreased with therapy but baseline levels were higher in responders. These data corroborate the notion that sunitinib induces endothelial injury as a critical component of its mechanism of action and suggest that treatment-induced changes in CEC might serve as a biomarker for treatment response.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.