TARGETED THERAPIES

Bevacizumab and heart failure

The systemic targeting of the VEGF pathway has, in recent years, been used to successfully treat a number of solid cancers. Drugs that target this pathway—which include the antibody bevacizumab—disrupt angiogenesis in the tumor. However, the VEGF pathway also has a role in cardiac physiology, which may explain some of the reported adverse effects of VEGF-targeted agents that include hypertension, and arterial and venous thromboembolism.

Fabio Schutz and colleagues observed that "congestive heart failure with VEGF inhibitors has been occasionally reported in the literature but no comprehensive studies have provided accurate and detailed assessment." Furthermore, as many treatments for breast cancer are cardiotoxic, the researchers felt that it was important to look at bevacizumab-induced toxicities in these patients.

Schutz describes their methodology: "we performed a meta-analysis of the published or presented randomized clinical trials in breast cancer patients treated with bevacizumab." A stringent selection criteria led to the analysis of five randomized, multicenter, phase III trials that included 3,784 patients with metastatic breast cancer who had been treated with bevacizumab in combination with chemotherapy.

Once the patient cohort had been identified the researchers "combined the adverse events of both groups from each trial to reach an overall incidence of congestive heart failure and a relative risk of developing it", explains Schutz. The results of this analysis were striking; the patients treated with bevacizumab had an almost fivefold higher risk of developing congestive heart failure than those in the placebo or control group.

Although the overall risk of congestive heart failure was low, the increased risk in patients receiving this therapy indicates that attention should be paid to monitoring cardiac damage in all patients receiving bevacizumab. The disadvantages of this meta-analysis were acknowledged by the authors; it will be important to prospectively monitor this toxicity in future trials and treatment.

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Original article Choueiri, T. K. *et al*. Congestive heart failure risk in patients with breast cancer treated with bevacizumab. *J. Clin. Oncol*. doi:10.1200/JCO.2010.31.9129