

**Intravitreal Bevacizumab (Avastin) and Cardiovascular Adverse Events - More Than Meets the Eye**

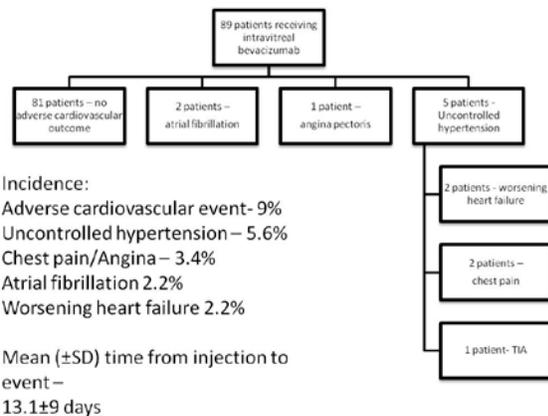
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Introduction: Neovascular age-related macular degeneration (AMD) is the leading cause of legal blindness in the elderly population worldwide. Bevacizumab (Avastin, Genetech) is an anti vascular endothelial growth factor antibody, primarily known for its use in malignancies. When Bevacizumab is administered intravitreally, it has been shown to improve visual acuity in patients with AMD. Although cardiovascular side effects have been described in a large trial, their significance remained questionable.

Methods: We conducted a retrospective analysis of a patient cohort receiving intravitreal Bevacizumab in our institution. We sought to determine the incidence and specific types of adverse cardiovascular events related to these injections. All consecutive patients receiving this therapy during the period 1/2008 until 6/2011 were considered. Cardiovascular adverse events were defined as any cardiovascular symptom or sign developing within a month of the injection.

Results: A total of 89 patients were included in this study. 8 adverse cardiovascular events occurred, yielding an incidence of 9%. These events included 5 patients with uncontrolled hypertension, 2 patients with recurrence of atrial fibrillation, and one patient with worsening angina pectoris. Uncontrolled hypertension was complicated by worsening heart failure in 2 patients, chest pain in 2 patients, and a TIA in one patient. The mean time ( $\pm$ SD) from injection to the adverse event was 13.1 $\pm$ 9 days. An unexpected finding was that Bevacizumab therapy was mentioned only in 2 of the patients with these complications.



Conclusions: Intravitreal Bevacizumab injections may be associated with adverse cardiovascular events. These include uncontrolled hypertension, worsening angina or heart failure, atrial fibrillation, and TIA. A focused ophthalmologic history might aid in identifying a previously unrecognized precipitating factor for these common events and possibly prevent recurrence in the future.