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Real-World Utilization of Intravitreal Antivascular Endothelial Growth Factor Agents in Retinal Diseases: A Claims Analysis from 2006 to 2011



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OBJECTIVE The purpose of this study is to examine real-world utilization patterns of anti-VEGF agents in common retinal diseases.

PURPOSE Randomized controlled trials (RCTs) have demonstrated significant efficacy of anti-vascular endothelial growth factor (anti-VEGF) agents in retinal diseases. However, it is unclear whether treatment regimens in RCTs are implemented in actual practice. The purpose of this study is to examine real-world utilization patterns of anti-VEGF agents in common retinal diseases.

METHODS This retrospective study uses commercial and Medicare insurance claims from January 2006 - June 2011. The sample consists of patients receiving ≥ 1 intravitreal anti-VEGF injection (ranibizumab or bevacizumab) within 12 months from the initial diagnosis of neovascular age-related macular degeneration (AMD), branch retinal vein occlusion (BRVO), central retinal vein occlusion (CRVO), or diabetic macular edema (DME). The number of anti-VEGF injections per patient was examined for 12 months from the index date of first anti-VEGF treatment. Subgroup analyses were conducted to examine whether concurrent use of laser/triamcinolone influences the number of anti-VEGF treatments.

RESULTS A total of 15,880, 900, 914, and 1,272 patients were identified as bevacizumab users for AMD, BRVO, CRVO, and DME, respectively. Another 4,119 AMD patients were identified as ranibizumab users. The number of ranibizumab users for BRVO, CRVO, or DME was too small to allow meaningful analysis. The mean number of bevacizumab treatments during 12-months of observation were 4.6, 2.8, 3.1, and 2.6 for AMD, BRVO, CRVO, and DME, respectively. In AMD, the mean number of ranibizumab treatments was 5.9. For AMD patients with at least 3 anti-VEGF treatments, the majority of ranibizumab (81.8%) and bevacizumab (75.2%) users received the first 3 injections within 3 months from the index date. The corresponding proportions for bevacizumab users were lower in BRVO (40.1%), CRVO (42.3%), and DME (37.7%). Concurrent use of laser or triamcinolone was not associated with the number of anti-VEGF injections.

CONCLUSION Between 2006 and 2011, the number of anti-VEGF injections patients received in actual practice is lower than the number reported in RCTs for common retinal diseases. Therefore, under-treatment with anti-VEGF therapy in the real world may preclude patients from achieving the successful visual outcomes observed in RCTs.

TAKE HOME MESSAGE The under-treatment with anti-VEGF therapy in the real world may preclude patients from achieving the successful visual outcomes observed in RCTs.

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Practice Analytics in Retina Practice Management

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OBJECTIVE Practice analytics enable the physician to assess current practice, improve patient flow, and calculate cost of care delivery.

PURPOSE The change in health care delivery necessitates the improvement in practice efficiency, calculation of costs and analysis of patient population to change care delivery and allow for transition to new payment modes such as episodes of care.

METHODS Collected data include patient demographics, insurance mix, referring physician sources, care delivery identified by CPT codes including office visits, lasers, surgery and drug injections, collections of revenue. Costs of care delivery can be calculated. Time stamps are assigned to patients at all locations in practice to assess flow from entry, to technician, to OCT or photography, to physician, and then to check out.

RESULTS We show the source of new patients, and follow up patients, the insurance - Medicare mix. Tracking referring sources enables better outreach for increasing new patients. Checking patient flow within the office improves scheduling of patients, organizing of testing like OCTs, and treatment with intravitreal injections, all which goes towards improvement of patient satisfaction. Assessment of practice wide diagnostic data insures compliance with treatment and care standards. The collection of information enables calculation of care cost per physician for a given diagnosis, and in turn assists in planning for payment based on 'episode of care'.

CONCLUSION Use of heightened information collection and processing when used effectively improves patient flow, increases physician productivity and enable the calculation of practice costs. This data also in valuable in projections for change in

revenue with changing reimbursements. This type of data mining will be most useful in the transition to as yet not understood changes in the health delivery system.

TAKE HOME MESSAGE Use of practice analytics can aid improvement in practice flow, scheduling, and patient management.