GLAUCOMA ADHERENCE

Lower age, higher co-morbidity burden, at higher risk for medication non-compliance

By Howard Larkin in Orlando

A five-year retrospective study of nearly 18,000 glaucoma patients by a large US health system found that most patients are either highly adherent or highly non-adherent with prescribed IOP-lowering medication, and that these patterns of behaviour are usually evident in the first year of treatment.

The results suggest that efforts to improve glaucoma medication adherence should target specific groups and individual patients, Jason Jones PhD of the Kaiser Permanente Southern California Department of Research & Evaluation, Pasadena, California, US, told the 2011 annual meeting of the American Academy of Ophthalmology (AAO).

Using glaucoma drop prescription refill data, Kaiser Permanente researchers calculated a medication possession ratio, or MPR, for each patient as a proxy for medication adherence. An MPR of 1.0 indicates the patient had enough medication for 100 per cent adherence with prescribed doses during the period while 0.0 indicates no medication at all on hand.

The study found a pronounced bimodal distribution in adherence behaviour during the second year of treatment. At the high end, 5,556 patients, or 31 per cent, had an MPR of 0.8 or more, meaning they had access to 80 per cent or more of the medication prescribed for the period. The peak for this group was about 95 per cent, suggesting close to daily adherence for many patients. On the low end, 4,732 patients, or 27 per cent, had MPRs between 0.2 and 0.79, indicating they had possession of less than 20 per cent of prescribed glaucoma medications.

The peak for this group at just over zero per cent suggests that many patients took no drugs at all, possibly increasing their risk of glaucoma progression. Another 31 per cent of patients had MPRs between 0.2 and 0.79, with the distribution skewed slightly toward higher possession ratios. Eleven per cent were not included because they left the study group during the year. The overall mean MPR was 0.52 and the median 0.57, consistent with prior publications but not useful in identifying specific indicators of adherence given the nature of the distribution.

However, “any interventions should consider the fact of the bimodal nature of compliance, and suggests specific targeting of patients,” Dr Jones said.

Broad population study The study included 17,679 glaucoma patients aged 18 or older who were diagnosed and started medication within 90 days between 2005 and 2009, had no previous glaucoma diagnosis or surgery, and had both medical and prescription insurance coverage through Kaiser Permanente until the follow-up period ended or they had glaucoma surgery. Patients’ mean age was 66 years, with 51 per cent female. Mean length of follow up was three years, with 4,510 patients followed for five years. They include all qualifying incident glaucoma cases identified during the period among about 3.5 million patients Kaiser Permanente serves in Southern California.

Since Kaiser Permanente delivered most medical services to these patients supported by comprehensive electronic health records, the researchers were able to track most interventions, including prescription filling behaviour, not only for ophthalmology, but for all medical services used by the entire study population. The primary focus was on IOP-lowering medication adherence in year two of treatment. Potential correlates of adherence, including demographics, co-morbid conditions, health service resource utilisation, adherence with medications for other conditions and glaucoma MPR year-to-year were examined to identify possible predictors of high or low adherence.

By far the most powerful predictor of second-year glaucoma medication adherence was first-year adherence as measured by MPR, with an area under the receiver operating characteristic curve (AUC) of 0.95 (p<0.001). Similarly, year two and year five MPR were strongly related at AUC=0.87, suggesting that adherence behaviours are established early and persist, Dr Jones said.

More ophthalmology outpatient visits in the first two years also predicted better year two adherence, with AUCs of 0.61 and 0.64, respectively. “The results of this study, as with others, point out that continuing to see their doctors is related to patients’ medication adherence but not nearly as strongly as their prior medication adherence behaviour,” Dr Jones said.

Members of the high adherence group also showed a slightly higher use of outpatient services overall in year one. Conversely, members of the low adherence group showed higher inpatient use in year one, logging 1.33 days per member for the year, compared with 0.75 per member per year for the high adherence group.

Among demographic factors, higher age, female gender and white race were weak predictors of better adherence. Half of those in the low adherence group were 65 or younger, compared with 38 per cent in the high adherence group, while 48 per cent of low adherers were female compared with 54 per cent of high adherers, and 47 per cent of low adherers were white compared with 52 per cent of high adherers.

Overall, the glaucoma population has a high incidence of co-morbid conditions, including hypertension in 65 per cent, diabetes in 29 per cent, chronic pulmonary disease in 17 per cent, cancer in 12 per cent and renal disease in 13 per cent. On average they took seven to eight non-glaucoma medications in six to seven classes. But while the prevalence of particular co-morbidities were similar between the high and low adherence groups, the low adherence group was more likely to have a higher co-morbidity burden, despite generally being younger.

“Adherence to IOP-lowering medication is weakly associated with adherence to other chronic medications or use of other medical services. Ophthalmologists should focus efforts on groups and individuals that have demonstrated low adherence, and stress the importance of treating glaucoma independently of other chronic diseases,” Dr Jones concluded.

contact Jason P Jones – Jason.p.jones@kp.org