Primary angle closure glaucoma (PACG) is being studied more intensively as the significance of the disease is better being recognized worldwide. Based on Quigley and Broman’s estimation, 60.5 million people were expected to have glaucoma in 2010, increasing to 79.6 million by 2020, three-fourths of whom will have primary open angle glaucoma (POAG). However, the rate of blindness due to PACG is much higher than POAG. Bilateral blindness secondary to glaucoma was estimated to be present in 4.5 million persons with POAG and 3.9 million persons with PACG in 2010; these figures are expected to rise to 5.9 and 5.3 million in 2020, respectively.

PACG is frequent in Asia and Alaskan Eskimos and is a fairly common type of glaucoma in other parts of the world although it is thought to comprise only a minority of the glaucomas in people of European origin. Acute primary angle closure (APAC) can lead to immediate loss of vision if left untreated. Therefore, detecting cases at high-risk of developing the disease would be a worthwhile effort. Unfortunately, this endeavor has not been quite successful because of the fairly wide range of biometric measurements encountered in angle closure glaucoma patients. Advances in the technology used for biometric measurements can potentially improve the situation.

In this issue of the Journal of Ophthalmic and Vision Research, Pakravan et al explored whether any biometric parameter could predict the future development of APAC in eyes with critically narrow angles. Fellow eyes of patients with a history of APAC in one eye were considered at high risk for a future attack of APAC and were compared to a group of primary angle closure suspects (PACS, eyes with >270 degrees of appositional angle closure on dark room gonioscopy) and a group of normal control subjects. Biometry was performed with A-scan ultrasound and Scheimpflug imaging was employed using the Pentacam. The authors found that an anterior chamber volume ≤100 μl and AC depth ≤2.1 mm were quite effective in differentiating fellow eyes of APAC patients from normal control eyes. It was rather surprising to find that there was no significant difference in any of the studied parameters between PACS eyes and fellow eyes of APAC patients.

The results are consistent with the existing literature. However, a few things need to be considered before the results are applied clinically. First, even with the reported AC volume or AC depth, the sensitivity was not 100% although the specificity was quite good. A combination of various predictors including newer anatomic parameters such as lens vault could potentially provide better prediction of future angle closure. The latter has recently been found to be as effective as AC depth for predicting eyes with narrow angles. One also needs to consider that the predictive factors found in this study pertain to fellow eyes of APAC patients. Therefore, these findings may not be generalizable to eyes at risk of developing chronic angle closure glaucoma, although one would expect that similar factors would be at work in the chronic form of the disease. Given the case-control design of the study, the role of factors such as gender could not be evaluated nor incorporated into the models.

Clinically relevant questions in such a setting would actually be the following: among eyes with narrow angles, which clinical or biometric parameters are predictive of future acute or chronic angle closure glaucoma? As
mentioned above, from the analyses provided in the manuscript, it appears that biometric characteristics of PACS eyes are just too similar to those of eyes at high risk of developing APAC within the next 5 years and therefore there may be no good answers for this question.

In summary, the work by Pakravan and colleagues represents an important step towards better understanding the determinants of future angle closure and hopefully will result in increased awareness of such predictive factors both in clinical settings and in future screening endeavors.

REFERENCES