BACKGROUND

- A positive family history of glaucoma has long been assumed to be associated with significantly elevated risk of primary open angle glaucoma, which has been reported in 15–25% of the cases. (Arch Ophthalmol 1994;112:69–77)
- The Baltimore Eye Survey \(^1\) reported a higher risk of glaucoma in siblings than in parents or children of known glaucoma patients.
- The Barbados Eye Study \(^2\) documented four times increased risk of glaucoma in siblings of known glaucoma patients.

- The examination of family members of those with diagnosed glaucoma could be an efficient means to identify a group at greater risk.
- In this study we offered an eye examination to family members of proven glaucoma (POAG & PACG) with the help of Aravind Family Glaucoma Project (AFGP).

PURPOSE

To identify the risk of glaucoma in first degree relatives of definitive glaucoma patients.

METHODS

- We counselled all glaucoma patients to request all their first degree relative to come for a check up.
- Consent was obtained from patients to contact all family members and to participate in the study.
- We contacted the relatives of glaucoma patients by means of printed mails or telephonic call.
- All patients were examined at Aravind Eye Hospital, Tirunelveli between Jan 2010 to Jan 2011.
- All qualified family members were offered a comprehensive eye examination that includes:
  - Slit Lamp biomicroscopy,
  - Applanation tonometry,
  - Gonioscopy,
  - Fundus examination.
  - Pachymetry,
  - Visual field testing.

RESULTS

Total Screened: 434 Relatives

- 300 POAG Relatives
- 134 PACG Relatives

Sex Distribution

- 203 Males
- 174 Females

Mean Age in years

- 55%
- 45%

INTERPRETATION

In POAG group a total of 134 relatives of 47 PACG patients were screened and 20 (4.53%) were to have diagnosis of POAG.

DISCUSSION

In the present study the prevalence of glaucoma in first degree relatives was found to be 10.73% in POAG and 4.53% in PACG group.

- Rotterdam Study (1998) \(^1\) – POAG
  - Found the prevalence of glaucoma in first degree relatives to be 10.4% in siblings and 1.1% in offspring of patients.

- Baltimore eye Survey (1994) \(^3\) – POAG
  - A total of 16.1% of cases reported a positive family history of glaucoma among first degree relatives.
  - The Strongest association was with siblings (9.9%; Odd’s Ratio 3.69) than in parents (5.6%; Odds Ratio 2.17) and weakest with their children (1.2%; Odds Ratio 1.12).

- Finish twin Cohort Study (1987) \(^4\) – POAG
  - In a twin study in Finland the heritability estimate was 10.2%.

- Barbados Family Study (1996) \(^3\) – POAG
  - Found 19.8% (67/338) of siblings to have OAG in a population mainly of Afro-Caribbeans.

- In Eskimos, prevalence of PACG in first degree relatives was found to be 3.5 times higher than in general population \(^5\).

- Heritability and siblings’ risk of narrow angle, reveals a high heritability of narrow angles of almost 60%. Siblings of Chinese patients with PAC/PACG have almost 50% probability of having narrow angle and are more than 7 times to have narrow angles than general population \(^6\).

- Our study prevalence of Open Angle Glaucoma is 10.73% and that of Angle closure was 4.53%.

LIMITATIONS

- We were unable to screen the complete family due to various reasons (not in native place, not willing / few passed away).
- Small sample size.

CONCLUSION

This study demonstrates a novel program (AFGP) to identify family members of known glaucoma patients, who are at higher risk of developing glaucoma. This study also reconfirms that the first degree relatives of known glaucoma patients are the most AT RISK group to develop glaucoma & of those siblings have the highest risk.

REFERENCES