P-FS-126

A CLINICAL CASE FINDING STRATEGY FOR HIGH PRESSURE PRIMARY OPEN ANGLE GLAUCOMA BASED ON AN INTEGRATED RISK INDEX

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PURPOSE: About 50% of glaucoma cases are not diagnosed early enough and the possibility of having a "case finding" strategy with high diagnostic predictivity would allow an "early detection" of the pathology. Based on the data from population studies we developed an algorithm to identify the possibility of developing high pressure primary open angle glaucoma by combining disease risk factors: I.O.P., central corneal thickness, race, age, familiarity, myopia.

METHODS: Based on randomized clinical trials, each risk factor was weighted so that the most significative factors have a greater influence on the risk estimate: this gave the function f(xi), developed as a linear combination of the single functions, from 0, no risk, to 1, maximum risk. Giving the law, g(x1), linking each risk factor with glaucoma: A 0.3 minimum threshold value was calculated, beyond which the patient is suspect.

$$f(x_1) = \sum_{f-1}^{4} g(x_1)$$

Our strategy has three steps:

*1 : calculation of the integrated risk index for patients > **40 years** with ocular tone > **20 mm hg**.;*

*2: if the risk index < **0.3** the patient is seen again at **3 months**.*
*If the risk index > **0.3** a daily tonometric curve and ophthalmoscopy is carried out;*

*3: if negative the patient is seen again at **3 months**.*
If there are alterations in the curve and/or papilla or peripapillary area, SAP with threshold strategy, Brusini's GSS2 and gonioscopy are carried out.

DEMOGRAPHY STUDIES:

- Collaborative Glaucoma Study
- Baltimore Eye Survey
- Australian Blue Mountains Eye Study
- Barbados Eye Study
- Rotterdam Study
- Beaver Dam

PRECISE INDICATIONS ABOUT THE GLAUCOMA RISK FACTORS ARE PROVIDED BY:

- The realiability of population studies is guaranteed by the casual selection of the sample of the study
- Given that the majority of these studies have been carried out in North America and Europe, provided that the Open-Angle is the most common form of Glaucoma, the available data relate mainly to the POAG

RESULTS: Using this protocol we examined 1052 eyes of 526 patients attending outpatient clinics for various ocular pathologies: 288 men and 238 women, mean age 62 and 57 years, respectively. A diagnosis of glaucoma was made for 12 patients (2.8%), close to the prevalence rate in the Italian population.

Demography of patients

FEMALE 238
MALE 288

Number of patients: 526

Tonometric value distribution

T.O.<16	436
16< T.O.<20	506
T.O.>20	110
P.O.A.G.	12

Total eyes: 1052

CONCLUSIONS: The algorithm, together with objective diagnostic examinations, was able to identify patients affected by POAG.
This strategy is repeatable, easily applied in low-tech environments and economically sustainable.
The creation of a simple "score" identifies suspect patients limiting the use of instrumental exams to cases of real necessity, avoiding resource waste.
The algorithm is available on a USB device or downloadable from www.progettoidr.it and is aimed at low-tech oculist out-patients clinics with a high patient flow and, in the future, could be available as an app.

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