Predictors of Family Recruitment in a Program of Genetic Cascade Screening for Familial Hypercholesterolemia

Maria Cristina de Oliveira Izar and Francisco Antonio Helfenstein Fonseca

Disciplina de Cardiologia - Escola Paulista de Medicina - Universidade Federal de São Paulo, São Paulo, SP – Brazil

Short Editorial regarding the article: Predictors of Family Enrollment in a Genetic Cascade Screening Program for Familial Hypercholesterolemia

Familial hypercholesterolemia (FH) is a common inherited disease affecting lipid metabolism; it is associated with lifelong exposure to high levels of LDL-cholesterol, and premature atherosclerotic cardiovascular disease. FH imposes an enormous burden on patients and their relatives, due to years of life lost, and particularly, for not being diagnosed as an entity.[1]

In spite of the high LDL-cholesterol and even after an atherosclerotic event, a large proportion of individuals with FH remains undiagnosed.[2,3] Criteria for diagnosing FH are based on clinical findings, family history, LDL-cholesterol levels, and genetic testing (Simon Broome or Dutch Lipid Clinic Network), or on the LDL-cholesterol levels alone (US MED PED).[4] However, FH phenotypes can vary, and the lack of physical signs (15-30% of patients with genetic diagnosis of FH present xanthomas or corneal arcus, and 5% have xanthelasma) can contribute for the underdiagnosis of FH. [5-7]

Genetic testing using a panel that includes FH-causing genes (*LDLR*, *APOB*, *PCSK9*, and *LDLRAP-1*) is the best approach to identify probands.[1,4] When cascade screening is proposed to a family with a confirmed genetic case of FH, the costs for this screening program are much lower and are considered a cost-effective intervention, enabling early diagnosis and treatment of the affected relatives. One problem with cascade screening is how to have a high proportion of relatives adhering to the screening program.[8-11]

Silva-Souza, et al.,[12] in the article entitled *Predictors of Family Recruitment in a Program of Genetic Cascade Screening for Familial Hypercholesterolemia* identified the best predictors of genetic family screening, using characteristics derived from their probands.[12] From January 2011 to July 2015, 183 probands (confirmed for FH by genetic testing) had their 1st degree family members recruited for the cascade program. The response variable was the number of relatives that adhered to the recruitment.[13] Study variables were derived from clinical and socioeconomic characteristics of the index cases. A linear negative binomial regression model was used to test predictors. Reference origin from the *site* of cascade screening vs. tertiary prevention, LDL-cholesterol in the proband, and family history were independent predictors for a higher number of recruited subjects.

There are a number of reasons that would reinforce the need and the importance to adhere to a genetic cascade screening program. The costs are lower than when a proband is diagnosed,[10] it is a predictor of coronary disease,[14] adherence to lipid-lowering drugs can be enhanced, and the treatment can be initiated earlier in life.[14] A structured follow-up of the screened individuals should be performed to assure early and continuous treatment. Most concerns related to lack of adherence to screening are related to patient/relatives education, and physician inertia. Strategies to address these issues and mitigate the burden of atherosclerotic disease in this population should be developed.

Keywords

Hyperlipoproteinemia Type II/genetic; Lipid Metabolism Disorders; Hyperlipoproteinemia/prevention &control; Family Health Strategy

Mailing Address: Maria Cristina de Oliveira Izar •
Rua Loefgren, 1350. Postal Code 04040-001, Vila Clementino, São Paulo, SP – Brazil
E-mail: mcoizar@terra.com.br; mcoizar@cardiol.br

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