Epidemiologic and public-health issues of progressive fibrodysplasia ossificans in Spain

Aspectos epidemiológicos y de interés público-sanitario de la fibrodysplasia ossificante progresiva en España

Dear Editor,

Fibrodysplasia ossificans progressiva (FOP) is the most serious cause of ectopic ossification in humans. It is characterised by bone malformations (congenital hallux valgus), and plates of endochondral bone in the muscle and other structures rich in connective tissue. Although there is variability, the plates tend to create bridges that reduce mobility and prevent vital functions such as breathing and eating. Even though the impact on functional capacity and quality of life is one of its most relevant aspects, in our setting there are few data in this regard, a lack of information that is shared with other rare diseases.

We have recently completed a nationwide study to evaluate the population of patients with FOP using diverse sources: hospital records, calls to scientific and patient societies, and a bibliographic search. Out of the 24 confirmed cases, 3 patients had deceased and 4 could not be interviewed. The remaining 17 were provided with a structured questionnaire about data on: (1) epidemiology; (2) family: genetic anomalies, occupational exposure; and (3) social interest. Using a Spanish population of contemporaries as reference, the living 17 patients represent a precise prevalence of 0.36 × 10⁻². Thirteen (54.2%) patients were male, aged between 4 and 53 years old. Mean parent age (±SD) at the patient’s birth was 34.4 (±8.5) years for fathers and 30.3 (±6.7) for mothers. The comparison of this data with Spanish Paternity Records from 1980 (mean birth of the cohort) showed a paternal age that was higher than the general population (mean ± SD = 30.1 ± 6.2; p = 0.03). One of the parents had had repeated exposure to chemical products and 6 had been exposed to chemical or environmental agents with less intensity. Five (33.3%) of the 15 respondents had completed compulsory education, 6 (40.0%) secondary school, one (6.6%) professional training, and 3 (20.0%) had completed a university degree. Four out of 12 had had a paid occupation. One out of 16 stated that his ability to walk was normal, 4 needed crutches, one used a medical walker and 3 used wheelchairs. The remaining 3 were unable to walk (one had been bedridden since the age of 25). All of them received medical care exclusively in the public system, and the main caregiver was always a direct relative. Some degree of disability benefits had been granted to 15 of the 16 patients that requested it, at a percentage of 34–99% (mean ± SD: 77.5 ± 15.5). Three out of 14 (21.4%) received other types of help: at home (2 cases) and psychotherapy (one).

Given the extremely infrequency of FOP, this cohort represents a relatively high number of cases. Assuming a prevalence of one case per every 2 million as valid, 22–24 patients would be expected for the Spanish population in 2010. By having employed all the identification sources systematically and considering this is a nationwide study, the probability of bias decreases. The considerable and statistically significant increase in parental age is worth mentioning, which is in line with similar findings. Furthermore, we have proven a high rate of paternal exposure to potentially mutagenic environmental agents. Although the validity of these observations is limited by the low number of cases, the absence of a dose-response gradient (not estimated) and the lack of a control group, it cannot be ruled out that the behaviour of certain environmental agents in older parents may increase the mutation rate, which is key in FOP pathogenesis. Half of the patients needed crutches, medical walkers or wheelchairs, and around 20% had almost lost the capacity to walk. The ability to carry out basic activities, such as taking a shower, getting dressed or eating was also very diminished. It is surprising that the educational level reached is similar to that of the general population. All patients (except one) had been given some degree of disability benefits, quantified at around 80% on average. Only on limited occasions did they receive other economic assistance apart from that due to their degree of disability, and the means of assistance were insufficient. Perhaps this explains why a direct relative always assumes the role of primary (and usually only) caregiver. It is also noteworthy that all the patients received medical care exclusively from the public system. However, it should be noted that many of them used healthcare services in a restricted or discontinued manner. This being the scenario, the collaboration among the different healthcare areas and their coordination with other healthcare and social programmes seem to be paramount for the mitigation of damage caused by this devastating disease, which still lacks an effective treatment.

References


Antonio A. Morales-Piga a,b,c, Francisco Javier García Callejo c, Pedro González Herranz c, Javier Bachiller-Corral c

a Instituto de Investigación de Enfermedades Raras (IIE), Instituto de Salud Carlos III, Madrid, Spain
b Centro de Investigación Biomédica en Red de Enfermedades Raras (CIBERER), Instituto de Salud Carlos III, Madrid, Spain
c Servicio de Otorrinolaringología, Hospital Clínico Universitario, Valencia, Spain
d Servicio de Cirugía Ortopédica, Hospital Materno Infantil Teresa Herrera (CHU), La Coruña, Spain
e Servicio de Reumatología, Hospital Ramón y Cajal, Madrid, Spain
f Corresponding author.
E-mail address: amorales@isiciss.es (A.A. Morales-Piga).