



Proyecto PID2021-126469OB-C22 financiado por MCIN/AEI/10.13039/501100011033/ y por FEDER Una manera de hacer Europa

Identificación del proyecto:

Descripción de fenotipos de artrosis de rodilla basándose en datos clínicos, de imagen y de laboratorio

Descripción del proyecto:

Osteoarthritis (OA) is a highly disabling disease with a high impact in the society. It has an elevated prevalence (30% of Spanish population over 65 years present radiologic OA) and a significant economic cost. In Spain it corresponds to 0,5% gross national product with medical treatment representing 46% of this cost, mainly due to total knee replacement (TKR) surgery. Currently, OA has been proposed to be a syndrome comprised of multiple distinct phenotypes, that may represent different mechanisms of the disease. An OA phenotype can be defined by several outcomes, but it has been proposed that those based on reflecting differential treatment effects, prognosis or aetiology are the most meaningful.

The mechanism of the disease may depend on one factor or be a combination of them. Risk factors at the patient level in OA comprises: demographic (age, sex, ethnic group), genetic, obesity and metabolic syndrome, bone structure (density and mass) elements, while at the joint level it includes joint shape, muscle strength, joint loads and alignment, joint overuse and previous injury or surgery. Therefore, this multifactorial condition must be studied and assessed in the most possible holistic way as treatments that focus only on a single factor/symptom usually fail, avoiding any efficient prevention of arthroplasty.

Such an approach calls for coordinating and combining the efforts of clinicians, biologists, and engineers. For this reason, we design a coordinated project that kick-off with the hypothesis that the phenotype of knee osteoarthritis (KOA) patients might be described by the nonlinear relation among the mechanical, kinematical and emotional variables instead of the variables themselves.

The main aim of the coordinated project is to report the interaction of parameters that describe KOA patients phenotypes, in order to perform a better sorting of individuals that could take benefit of certain therapies. In fact, it became clear from the results of HOLOA (the project that precedes the current one) that OA is a multifactorial disease in which individual parameters can vary greatly not only because of the state of the disease, but also for the action of other confounding factors, like gender, age and BMI.

The specific aims of this subproject are:

- To corroborate results from HOLOA in a validation group of our cohort, as well as in national community-sampled cohort (SIDIAP) and international OA cohorts (MOST). As the results are integrated, we aim to describe new KOA phenotypes.
- To design suitable therapeutic strategies according to the characteristics of each subgroup of

patients.

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