

Title of research project

Developing a novel algorithm to predict the risk of metal-on-polyethylene joint replacement failure

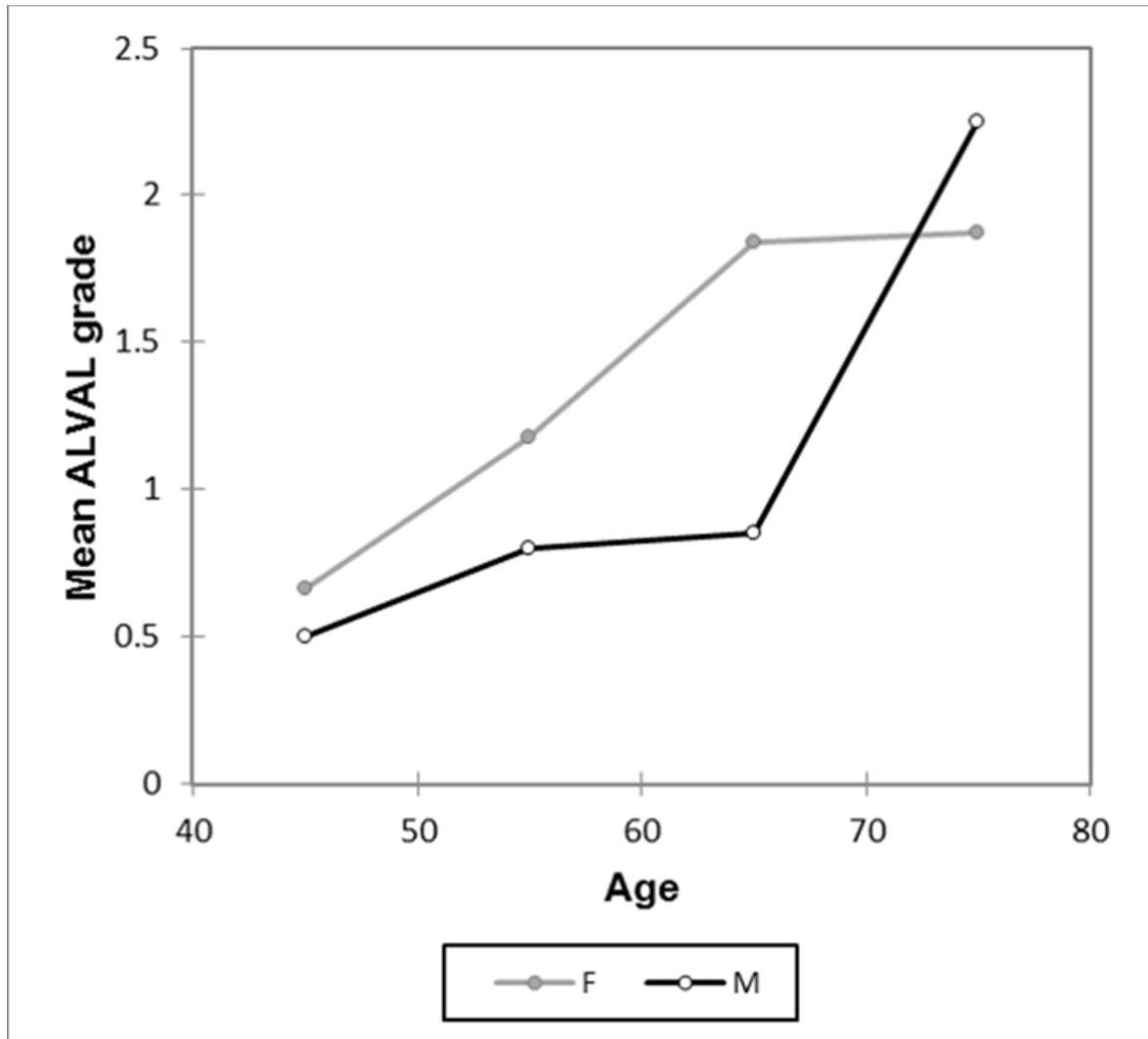


Figure 1 The average ALVAL grade of male (M) and female (F) patients in different age categories. In general, females develop more aggressive ALVAL responses to MoM hips. In general, older patients tend to develop higher-grade ALVAL; however, in these patients, the difference between the sexes is greatly diminished. These relationships remain significant in the face of statistical adjustment for volumetric wear exposure. We have found that certain HLA genes (specific for male and females) provide greater explanation for observed rates of ALVAL.

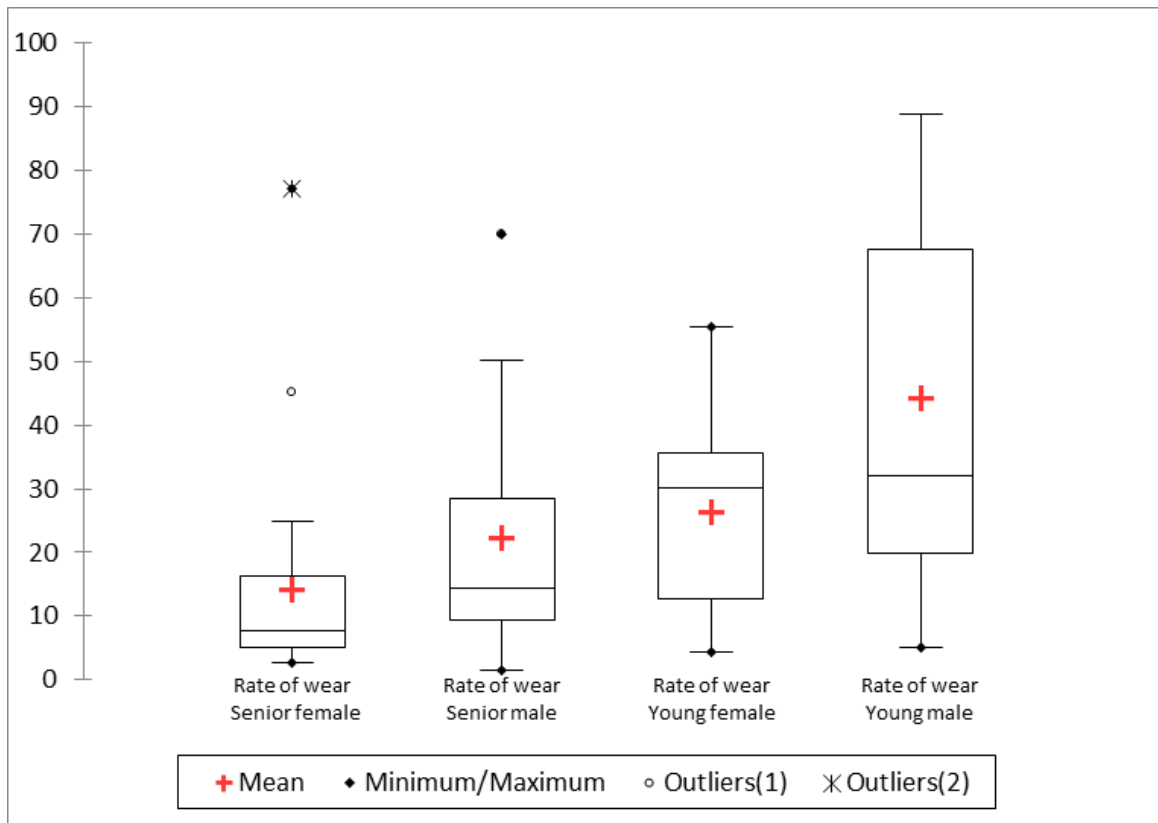


Figure 2 Preliminary results of 100 revision of total knee arthroplasties for osteolysis examined at our laboratory. “Wear” relates to volumetric wear analysis of the bearing surface of the polyethylene insert. The division between “young” and “senior” patients was drawn at age 60. It can be seen that there is a suggestion that MoP osteolysis may be influenced by the same factors leading to the development of ALVAL in MoM hips.