Cost-benefit analysis of screening strategies on the secondary prevention of early-preeclampsia using Aspirin in Spain

Abstract

Introduction

Preeclampsia is a pregnancy-specific disease that carries a high humanistic and economic burden. Moreover, due to sociodemographic factors, it is increasing yearly. Aspirin has been found to reduce cases of early preeclampsia (forced delivery before 34 weeks). Previous studies have analysed different approaches for preeclampsia prevention, but it is our objective to do it in a Spanish setting.

Methods

A decision-tree model was built with available data from literature and reviewed by specialists from Hospital Clínic de BCN. The baseline scenario explored the net cost and effectiveness in terms of quality-adjusted life years (QALYs) of the 4 selected strategies: 3 different screening methods to decide which patients would be treated with aspirin to prevent early preeclampsia, and universal aspirin administration. Additionally, a univariant sensitivity analysis between the different alternatives, a bivariant sensitivity analysis on treatment adherence, and a probabilistic sensitivity analysis through a Monte Carlo simulation (1000 iterations) was performed.

Results

Screening for maternal risk factors + MAP + UtA Doppler + PAPP-A was considered the most cost-effective. However, in the different sensitivity analyses, results were unclear, with a high impact of adherence on the results. Universal aspirin administration was the most cost-effective option 56% of the time on the Monte Carlos probabilistic analysis.

Conclusion

Results were not consistent between baseline and sensitivity analysis with screening for maternal risk factors + MAP + UtA Doppler + PAPP-A and universal aspirin administration being the most cost-effective options. Further information would help to clarify the results.