Budget impact analysis of Tocilizumab IV versus Adalimumab SC as a first line monotherapy for the treatment of patients with Rheumatoid Arthritis in Greece

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Background
Rheumatoid Arthritis (RA) is a chronic disabling disease of unknown etiology, affecting joints, causing restricted joint mobility, chronic pain, fatigue, functional disability and psychological distress. Whereas mortality is still higher for the RA patients than the general population, RA's particularity is that patients' quality of life is significantly and sometimes dramatically compromised. Prevalence of RA in Greece is 0.68%, substantially higher in females and increased significantly with age. Apart from its clinical consequences, RA poses a significant financial burden on the healthcare system, as extremely high morbidity costs are presented.

Objectives
To evaluate and compare the budget impact of tocilizumab intravenous (IV) and adalimumab subcutaneous (SC) as a first line (1L) monotherapy for the 6 month treatment of patients with RA, in the Greek healthcare system.

Methods
A budget impact model was developed to evaluate the cost per response rate of the two therapeutic options. Clinical data were derived from a head-to-head trial (ADACTA) and referred to the efficacy endpoints ACR 70, DAS 28 ≥ 3.2 and DAS 28< 2.6. Cost and resource utilization data were obtained from official government sources (2014) and included the cost of drugs, consumables, human resources, hospital charges and patient's time (productivity loss). Cost per response for both therapeutic options was estimated for all three clinical endpoints from the hospital, health system and societal perspective (Figure 1).

Results
The difference in cost per response between the alternatives was in favor of tocilizumab in all three scenarios examined. In more detail, the savings generated by the use of tocilizumab associated with achieving ACR 70 for a 68kg (mean weight) patient were €12,529, €9,657 and €8,810 from the hospital, health system and society's perspective, respectively. Similarly, the savings regarding DAS 28< 2.6 were €32,811, €30,522 and €29,831 for each perspective, respectively. In the third scenario (DAS 28< 3.2) the difference in cost per response between tocilizumab and adalimumab was €14,838 from the hospital’s, €13,041 from the health system’s and €12,506 from the society’s perspective. A more in-depth analysis of the DAS 28< 3.2 scenario examined from the society’s perspective, suggests that the savings secured from one patient undergoing treatment with tocilizumab IV could be invested in introducing two additional patients in the 6 month treatment with tocilizumab IV with one of them achieving remission (Figure 2). Additionally, in order for the two arms of comparison to have equal cost per response rate, the tocilizumab drug acquisition cost should increase by 58%. Similar results of all three scenarios indicate that treating patients with tocilizumab IV yields sufficient savings to initiate more patients in treatment with tocilizumab in 1L monotherapy and to achieve low disease activity or remission with greater probability and less resources.

Conclusions
Choosing tocilizumab instead of adalimumab as a 1L monotherapy for the RA treatment could be proven to be a cost saving option, with increased significance in the current economic environment of restricted healthcare resources and significantbudget constraints.

References