Budget impact analysis to assess the impact of adalimumab-atto (biosimilar) compared to adalimumab in autoimmune diseases in United Arab Emirates

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Background

- Autoimmune disorders are a category of diseases in which the immune system attacks the healthy cells in the body, as a result of a dysfunction of the acquired immune system(1). These disorders affect 3-5% of the population(2)
- The estimated prevalence of autoimmune diseases in Europe and the United States of America (USA) is 5.3% and 3.2%, respectively(3,4). However, data on prevalence of autoimmune disorders in the middle-east region is limited
- Diseases like rheumatoid arthritis, psoriatic arthritis, and ankylosing spondylitis have partially overlapping clinical manifestations, that are most destructive to the joints(4). These disorders are severe, chronic, and disabling conditions that can shorten life expectancy and impair quality of life
- With considerable similarities in their clinical features, the treatment strategies also overlap significantly and mainly include conventional disease-modifying anti-rheumatic drugs (cDMARDs) and newer biologics DMARDs (bDMARDs)(4)
- Studies showed that the utilization of biologics is suboptimal in the MENA region compared to USA (<2% vs 40%)(3); this could be attributed to the high cost associated with biologics(3)
- Biosimilars are highly similar copies of complex biologic drugs that are comparable to biologics in terms of safety and efficacy, but biosimilars are available at lower acquisition cost(5)
- Adalimumab-atto is an adalimumab biosimilar, indicated for the management of several autoimmune diseases. With the introduction of adalimumab-atto in United Arab Emirates (UAE), healthcare utilization cost is expected to be reduced.

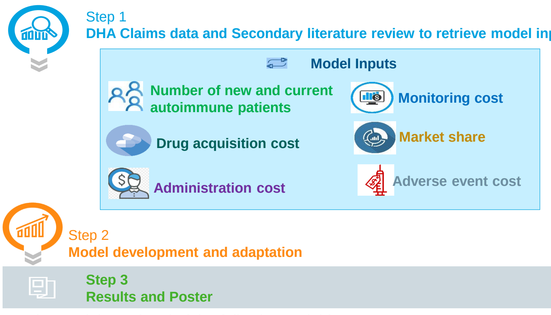
Objective

- This study estimated the budget impact (BI) of introducing adalimumab-atto for the management of autoimmune diseases from Dubai Health Authority (DHA) perspective over the time horizon of five years

Method

- An excel-based BI model was developed to assess two scenarios: “with adalimumab-atto” and “without adalimumab-atto”, over a five-year time horizon
- The overall methodology and the base case settings of the model are outlined in Figure 1 and Table 1, respectively

Figure 1: Methodology



- The model consisted of the following variables:
  - Model Intervention: adalimumab-atto; comparator: adalimumab;
  - Model Structure: Model was developed from DHA perspective for “without adalimumab-atto” and “with adalimumab-atto” in two scenarios:
    - Scenario 1 (Total replacement of adalimumab): All new patients will be treated with adalimumab-atto resulting in total replacement of adalimumab from the market
    - Scenario 2 (Gradual replacement of adalimumab): With introduction of adalimumab-atto, new patients will be treated with adalimumab-atto based on the market share of adalimumab
  - Model Assumptions: The efficacy of adalimumab and adalimumab-atto is considered to be same as adalimumab-atto
  - Model Inputs: The model inputs included estimated number of current and new patients with autoimmune diseases, market shares, drug acquisition cost, administration cost, monitoring cost, and adverse event cost. The model inputs were retrieved from DHA claims data and secondary literature
  - Model Outputs: The outputs of the model included net budget impact, total cost and number of treated with atto-adalimumab

Figure 2: Budget impact analysis

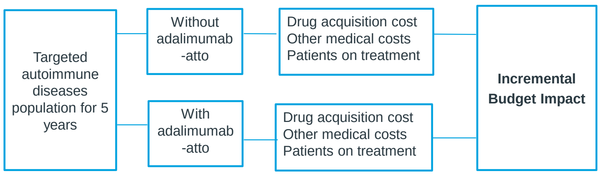


Table 1: Base Case Settings for BI model

Setting	Input/Source
Analytical tool	Microsoft® Excel
Time horizon	5 years
Currency	AED
Perspective	DHA
Eligible patient population	Patients with rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and psoriasis
Comparators considered	Adalimumab-atto
Introduction scenario of adalimumab-atto	1. Total Replacement of New Comers 2. Market Share based approach of replacement of new comers

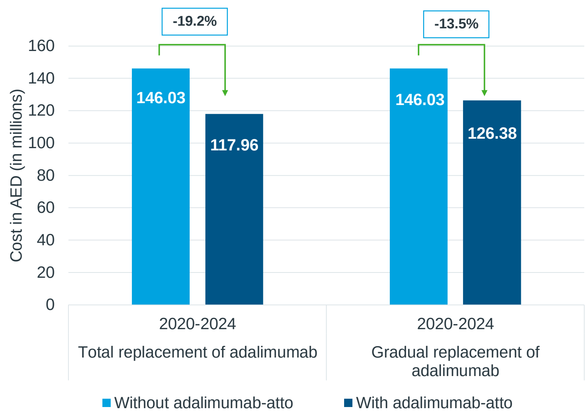
DHA: Dubai Health Authority; AED: Arab Emirates Dirham

Result

Net budget impact

- Over a 5-year time horizon, the total annual cost associated with adalimumab in the management of autoimmune disease patients was AED 146,031,932
- Scenario 1: The total replacement of adalimumab by adalimumab-atto for the management of new patients resulted in an overall savings of 19.2% (AED 28.1 million) [Figure 2]
- Scenario 2: The gradual introduction of adalimumab-atto for the management of new patients resulted in an overall savings of 13.5% (AED 19.6 million) compared to “without adalimumab-atto” scenario [Figure 2]

Figure 2: Net budget impact over a period of 5 years

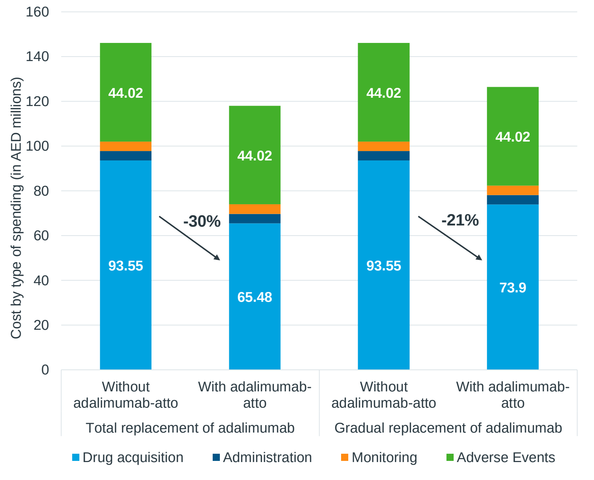


AED: Arab Emirates Dirham

Breakdown of total cost

- Primarily, drug acquisition cost was the leading contributor to the net budget, while other factors such as administration, monitoring and adverse event costs remained constant over the 5-year time period
- The adverse event cost was ~44 million, monitoring cost and administration cost was 4.2 million each in both the scenarios
- With the introduction of adalimumab-atto, drug acquisition cost decreased by 30% (~28.1 million) in the “total replacement of adalimumab” scenario, while the drug acquisition cost reduced by 21% (~20.5 million) in the “gradual replacement of adalimumab” scenario.
  - This ultimately led to decrease in the overall budget after introducing adalimumab-atto (Figure 3).

Figure 3: Breakdown of 5-year cumulative cost for the two Scenarios



AED: Arab Emirati Dirham

Conclusion

- The budget impact analysis demonstrated that the introduction of biosimilar adalimumab-atto for the treatment of autoimmune disorders would lead to substantial cost savings between AED 19.6 million to AED 28.1 million in the UAE budget over a period of 5-years.
- The cost savings were higher when total replacement of adalimumab is considered . The savings were primarily driven by low drug acquisition costs associated with biosimilars medical costs.
- Hence, the addition of adalimumab-atto to the drug formulary could be a cost-saving treatment option for autoimmune disease patients from the DHA payer perspective and would be a valuable option for optimal healthcare resources allocation for autoimmune therapies

References

1. Richard-Eaglin A, et al. Nurs Clin North Am 2018; 53(3):319-334
2. Wang L, et al. J. Intern. Med. 2015; 278; 369-395
3. Eaton WW, et al. Journal of autoimmunity. 2007 Aug 1;29(1):1-9.
4. Simon TA, et al. Advances in therapy. 2017 Nov 1;34(11):2481-90.
5. Zhao S, et al. Current rheumatology reports. 2018 Oct 1;20(10):57.

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