

Abstract:

Decreasing the amount of iron in the blood is crucial for thalassemia patients as they get regular blood transfusions for their treatment, and as a result iron accumulates in the body damaging vital organs such as the liver and heart, which ultimately leads to the death of the patient.

In Palestine, thalassemia patients undergo the difficult and painful infusion of a drug known as Deferoxamine (Desferal®/ DFO) that rids the body from excess iron. The drawback of such management strategy consists in its invasive character, where a needle, attached to a small battery-operated infusion pump, is worn under the skin overlying the stomach or legs, 5 to 7 times a week for up to 12 hours in each administration. Deferoxamine binds with iron in a process called “chelation”, leading to the elimination of the excess iron from the body. This treatment is found cumbersome by many patients, implying low adherence from their side with the management regimen, thus limiting its effectiveness in real life settings.

Consequently, the oral iron chelators have been introduced to help patients get rid of excess iron in a convenient matter. The two ‘Oral Iron Chelators’ are:

- 1- Deferiprone: Ferriprox® / L1
- 2- Deferasirox: Exjade®/ DFX

However, these oral chelators have not yet been introduced in the Palestinian context. This paper will investigate **whether an introduction of the oral iron chelators will be more cost effective and whether they enhance Quality of Life (QoL) for patients in Palestine.**

Three analytical approaches were used to assess the costs and consequences associated with each of the treatment strategies. Firstly, a cost-effectiveness analysis was conducted. Here, the comparison between the different medications was in terms of incremental cost effectiveness ratio (ICER), and the effect that was considered is the intermediate outcome of reduced iron in the body, which was measured through serum ferritin levels. From the Ministry of Health perspective DFX had lower ICER of NIS 392,384.7 per percentage reduction in serum ferritin levels than L1 when compared to DFO. From the patient perspective however, oral chelators strongly dominated the Desferal, while from the society perspective DFX had also lower ICER than L1 when compared to DFO.

Along this a cost-utility analysis was used to incorporate the 'Quality of Life' of the patients under the different medications, where oral chelators strongly dominated over DFO in the age category of over 4 years old, while in the societal perspective the ICUR was NIS 153,370/ QALY gained for the age group below or equal to 4 years old, and NIS 151,832.1/ QALY gained for the age group above 4 years old.

The third approach which is cost benefit analysis was used in an attempt to measure the effectiveness gained from oral chelators monetarily through estimating directly and indirectly the willingness to pay for the oral chelators using a contingent valuation and a conjoint analysis respectively. The net social benefit was highly positive in both cases.

KEY WORDS: cost-effectiveness; cost utility; quality of life; conjoint analysis; thalassemia; oral chelators.