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COST-EFFECTIVENESS OF ORAL AGENTS IN RELAPSING-REMITTING MULTIPLE SCLEROSIS COMPARED TO INTERFERON BASED THERAPY IN SAUDI ARABIA

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Background: Multiple sclerosis (MS) is a chronic demyelinating disorder of the central nervous system. Relapsing-Remitting MS (RRMS) is the most common type of MS that accounts for 90% of all cases. Recent evidence suggests medium to high prevalence in Saudi Arabia nearby 40 cases per 100,000 individuals. The mean age at onset in Saudi population is 25 years old. Increasing the burden of disease management and high cost of disease-modifying drugs (DMDs) designate a necessity of conducting Pharmacoeconomic studies to determine the long-term effectiveness of DMDs especially new oral agents.

Objective: To assess the cost-effectiveness of fingolimod, teriflunomide and dimethyl fumarate (DMF) versus Interferon-beta 1a (IFN) formulations including Avonex and Rebif from a tertiary care hospital perspective in Saudi Arabia (King Faisal Specialist Hospital & Research Center, KFSH&RC).

Methods:

- A full economic evaluation using direct medical costs and effectiveness measures was performed.
- A modified Markov model was used based on a previously published cohort simulation by the Canadian Agency for Drugs and Technology in Health (CADTH). Relapse and disease progression rates for each intervention were obtained from CADTH report.
- Quality-adjusted life years (QALYs) were utilized as an outcome measure in which they were calculated from utility scores provided by Prosser study.
- Cost data were measured and valued in Saudi Riyals and converted into US dollars.
- A payer's perspective was adopted with a time horizon of 20 years with an annual cycle length.
- 3% discount rate per annum was applied to cost and QALYs.

Discussion & Conclusion:

- Base-case results indicated that all DMDs are at a low value (had high ICER values) in the treatment of RRMS at willingness-to-pay (WTP) threshold of \$100,000.
- Avonex projected the lowest ICER value at \$337,282/QALY compared to Rebif as an optimal therapy which would be considered not cost-effective.
- Fingolimod was the only oral DMD that might be considered a cost-effective option (ICER= \$347,338/QALY) when a WTP higher than \$300,000 is considered.
- Teriflunomide and DMF were dominated by other treatment strategies.
- IFNs and oral agents have shown to be effective, however, oral had higher cost than IFNs, all DMDs would not be considered to be cost-effective at WTP threshold of \$100,000.
- More observational studies are required to determine optimal therapy in treating RRMS from a Saudi healthcare system perspective.

Biography

Ms. Alsaqa'aby joined King Faisal Specialist Hospital and Research Center as an inpatient pharmacist (pharmacist II) after an intensive year of training in one of the best healthcare organization in the Middle East. She got promoted to Pharmacist 1 within three years (2014) and she was involved in training of new staff and pharmacy residents besides her work duties. She's been a part of several projects. She graduated in May 2017 with a master's degree in health outcomes and socioeconomic sciences (major in Pharmacoeconomics) from the University of Toledo, Ohio, USA. She aims to help healthcare providers to make cost-conscious decisions regarding formulary management and resource allocation by applying Pharmacoeconomics principles in all healthcare sectors especially in the department of Pharmacy.