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Statins Formulary Selection in Qatar, Based on Multi-Indication Pharmacotherapeutic Multi-Criteria Scoring, and Clinician Preference

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Purpose

Statins selection for the largest hospital formulary in Qatar is not systematic, not comparative, not cost saving, and does not consider the multi-indication nature of statins. There are no literature reports of multi-indication based comparative scoring models of statins, or reports of statins selection criteria weights that are primarily based on local clinicians' preference and experiences. The study sought to comparatively evaluate statins for first-line therapy in Qatar, and to evaluate the economic impact of this.

Methods

An evidence-based, multi-indication, multi-criteria pharmacotherapeutic model was developed for the scoring of statins. This was from the perspective of the main healthcare provider in Qatar, the Hamad Medical Corporation (HMC). Literature and an expert panel informed the selection criteria of statins. Relative weighting of selection criteria was based on the input of the relevant local clinician population. The targeted clinician population was of all specialists and consultants in the departments of cardiology, internal medicine, and nephrology in HMC. Statins were comparatively evaluated according to their total pharmacotherapeutic selection scores, with only the statins that score more than 95% of the highest scoring statin getting recommended for formulary inclusion. Remaining

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statins that score more than 90% of the highest scoring statin will also be considered, but as non-formulary alternative. The remaining did not progress. Sensitivity analyses were conducted to investigate the robustness of the study outcomes against variations in study inputs. These included deterministic, probabilistic as well as scenario analyses, via @Risk-5.5 Palisade, USA.

Findings

This is the first literature report to inform formulary inclusion in Qatar or the Middle Eastern region, and the first in literature that comparatively score statins based on multiple indications, as compared to the typical pharmacoeconomics evaluation method, comparing differences in cost and effect between two statins for an indication of interest to guide the formulary inclusion decisions. With 95% confidence interval and 5% margin of error, the scoring model was successfully developed. Selection criteria comprised 28 sub-criteria, under the following main criteria: clinical efficacy, best publish evidence and experience, adverse effects, drug interaction, dosing time, and fixed dose combination availability. Outcome measures of multiple indications related to effects on LDL-cholesterol, HDL-cholesterol, triglyceride, total cholesterol, and c-reactive protein. Atorvastatin, pravastatin and rosuvastatin exceeded defined pharmacotherapeutic thresholds. Atorvastatin and pravastatin were suggested for first-line use in HMC, followed by rosuvastatin as a non-formulary alternative. Fluvastatin and simvastatin were recommended for exclusion from any hospital drug lists. This was estimated to produce 17.6% in cost savings, reducing the annual statins expenditure from QAR 152, 118, 200 to QAR 125, 367, 620;. Sensitivity analyses confirmed the robustness of the evaluation outcomes. The comparative criterion that affected the study conclusion was the availability of fixed dose combination. The possibility of 30% non-formulary drug utilization scenario resulted in an annual expenditure of QAR 129, 654, 180, still associated with up to 14.8% cost saving.

Implications

Incorporating a comparative evaluation of statins in Qatari practices, based on a locally-developed, transparent, multi-indication, multi-criteria scoring model, has the potential to considerably reduce the expenditure on statins. Atorvastatin and pravastatin should be the first-line statin therapies in the main Qatari healthcare provider, with rosuvastatin as an alternative. Important, is that the study results are consistent with published clinical guidelines, as well as with practices in overseas.