Algorithms for Predicting the Response to Statins
(VA Reference No. 10-055)

Method for predicting the probability of achieving target LDL levels with Statins

Technology
Algorithms for Predicting the Response to Statins

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Key Features
- Multivariate logistic model predicts patients' daily dose of lovastatin from predictor variables such as patient age, gender, etc. in order to achieve target LDL levels
- Potential to revolutionize the process of prescribing statin and improve outcomes for cardiovascular diseases at lower cost; thusly reducing the economic burden
- Supports pharmaceutical companies' pursuit of OTC low dose statins

Stage of Development
Reduced to practice with successful demonstration of methodology

Key words
Research and Diagnostic Tool
- Statins
- Chronic Cardiovascular disease
- LDL

Patent Status
Patent application has been filed

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Technology
The Department of Veterans Affairs' novel technology seeks to provide a new method in the use of predicting the probability of achieving target low-density lipoprotein levels for individuals administered statins as therapeutic agents. It has the potential to transform the process of prescribing statins and lowering costs, leading to a reduction in the economic burden of chronic cardiovascular disease impacting millions of Americans annually.

Description
Despite the fact that statins have the ability to lower cholesterol, only 40 percent of statin-treated patients actually achieve LDL-C (low-density lipoprotein cholesterol) target levels. Studies have shown that poor results are due to the ineffectiveness of starting doses, and that many physicians do not titrate to higher doses. The described multivariate logistical model for lovastatin can be used to predict the probability of achieving target LDL levels. The model can be used to predict patients' daily doses of lovastatin from predictor variables which include patient age, gender, minority status, pre-treatment LDL, body mass index, hemoglobin A1c, current doses of metformin and thiazolidinediones, current statin dose and type, and current doses of several drugs with major statin interactions. The model could also be used as the basis for computerized decision support for healthcare providers, where it could act as a stand-alone office application or could be embedded in a patient's electronic medical records with relevant clinical data entered by the patient and/or the healthcare provider.

Competitive Advantage
Currently, there are no competitive products on the market for predicting the probability of achieving target LDL levels for individuals administered statins as therapeutic agents.

This invention:
- Could revolutionize the process of prescribing statins
- Improve outcomes at the lowest cost and reduce economic burden of chronic cardiovascular disease
- Supports pharmaceutical companies' pursuit of OTC status for low dose statins by determining the likelihood of achieving target LDL for low or intermediate risk individuals.

Status
The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license, and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).