Patient's place of residence matters when choosing cost-effective anticoagulation therapy

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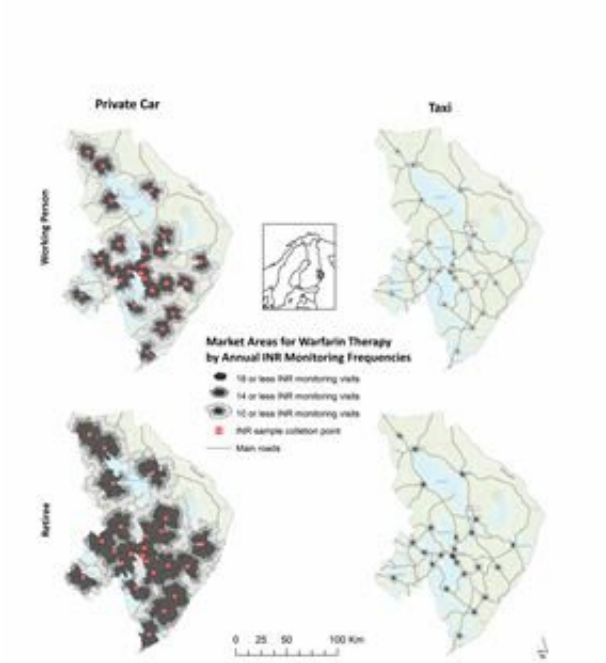

Credit: University of Eastern Finland

Appropriately selected anticoagulation therapy can help to reduce the medical costs of patients suffering from atrial fibrillation. A new study

from the University of Eastern Finland shows that direct oral anticoagulants can be a more cost-effective alternative than traditional warfarin therapy when the patient's place of residence is taken into consideration. Published in *Geospatial Health*, the study used GIS data to create a geospatial model comparing the costs of different anticoagulant therapies. The patient's travel, time-loss and medication costs were used parameters to determine the overall costs of therapy.

Most atrial fibrillation patients need anticoagulation management to reduce the risk of thromboembolic events and stroke. Currently, two major drug therapies are available: warfarin and direct oral anticoagulants (DOACs).

Patients receiving warfarin therapy require regular INR monitoring. As a result, warfarin therapy is more cost-effective than DOACs only when the patient lives near the INR sample collection point, due to higher costs of travel and greater loss of leisure or working time. The study found that DOACs are a more cost-effective alternative also in situations where the patient requires INR monitoring more frequently than normal.

The researchers developed a geospatial model that determines market areas DOAC and warfarin therapy, taking into consideration the costs of travel, time-loss caused by INR monitoring, different modes of travel and the patient's assumed working or retirement status. Using this data, they calculated distance limits for each market area by mode of transport, making is possible to compare the spatial costs of warfarin therapy also when using different modes of travel. The study compared the costs of warfarin and DOAC therapy in a hospital district in the eastern part of Finland.

The data used in the study included the regional sample collection point locations, the Finnish National Road and Street Database, and recent travel and medical cost parameters from the study area. The costs were

looked at from the patient's perspective, taking into consideration possible national reimbursements of medical costs and costs of using a taxi.

"Our model pertains to Finland, but it is possible to create a similar geospatial model for other countries as well, provided that road data and the required parameters are available. It is also possible to use this model to compare other drugs that have a treatment setting that is similar to anticoagulant therapy," Project Researcher and lead author of the study Mikko Pyykönen from the University of Eastern Finland notes.

More information: Mikko Pyykönen et al. A geospatial model to determine the spatial cost-efficiency of anticoagulation drug therapy: Patients' perspective, *Geospatial Health* (2019). DOI: 10.4081/gh.2019.809

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