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Title of paper: Prediction of falls in the elderly: A large community based cohort study

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Abstract

Background:

Falls are the leading cause of injury in patients aged over 65^[1]. 30% of this population will experience a fall each year^[2, 3], with an estimated annual cost to the NHS of £1.7 billion^[4]. Falls prevention services have been shown to effectively reduce the risk of falls by up to 55%, but limited resources mean they cannot be offered to all patients^[4]. Small cohort studies have identified risk factors associated with falls^[2, 3, 5-9]. This research aims to verify these results in a large population set and construct a model to identify high-risk individuals.

Method:

Routine GP data was collected on 119,645 individuals aged over 65 from GP databases across West Surrey over a 2.5year period. Logistic regression with backwards-stepwise elimination was used to identify positive predictive factors for falls. A regression tree was used to generate a falls prediction model based on these risk factors.

Results:

Age, deprivation score, alcohol use, elevated BMI, previous stroke, ischaemic heart disease, anaemia, previous falls, and antipsychotic medication were associated with increased risk of falls. The cross-validated error rate of falls prediction of our model was 37%.

Key Messages:

This Falls-Prediction model can reliably identify individuals at highest risk of falls, which can be used to guide referral to falls prevention services to maximise benefit and ensure effective allocation of resources.

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