Figure 2. Risk model for predicting early mortality (within four years of presumed incident epilepsy diagnosis. The risk score is calculated using the equation in (A) and then applied to formula in (B). The formula produces the estimated probability of dying in the first four years following incident epilepsy diagnosis. Using a threshold of 0.13, the algorithm has a sensitivity of 0.77 and specificity of 0.71 for early death. Age is the exact of the patient and the Townsend deprivation index quintile is only applicable to United Kingdom patients.

A

Risk score = -6.13 + 0.06*(age) - 0.93*(female sex) + 0.06*(Townsend) + 0.04*(enzyme inducing ASM) + 0.37*(No ASM at baseline) + 0.34*(alcoholism) + 0.05*(anxiety) + 0.17*(atrial fibrillation) - 0.03*(stable angina) - 0.08*(unstable angina) + 0.14*(myocardial infarction) + 2.11*(brain cancer) + 0.64*(cirrhosis) + 0.46*(chronic obstructive pulmonary disease) + 0.39*(dementia) + 0.04*(depression) - 0.04*(anaemia) + 0.40*(peripheral vascular disease) + 0.67*(CHF) - 0.05*(schizophrenia) + 0.18*(suicidal behavior) - 0.42*(ASM polytherapy at baseline) - 0.17*(stroke) - 0.25*(chronic renal failure)

B

$$\text{Risk} = \frac{1}{1 + e^{(-\text{risk score})}}$$