Predictive Accuracy of the Post-stroke Depression Prediction Scale (Depres)

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Background

Almost every third stroke patient suffered from depression after stroke [1]. The early assessment of depression in patients after stroke is essential for optimizing recovery.

To support the early identification, given the limited mean hospital stay of stroke patient of less than 2 weeks, the Post-stroke Depression Prediction Scale (DePreS) has been developed to estimate in the first week after stroke the risk of depression in the second month after stroke [2].

Objective

To establish in a new sample of hospitalized stroke patients the predictive accuracy of the DePreS.

Methods:

A cross-sectional study in a consecutive sample of 93 stroke patients able to communicate adequately admitted to one hospital in the Netherlands and two hospitals in Germany.

Data collection:

The DePreS has been translated into German according the ISPOR criteria [3].

Index test (within the first week after stroke):

- DePreS [2]

Reference test (six to eight weeks after stroke):

- CIDI [4,5]

Researchers conducting the reference test were blinded for the results of the index test.

Fig 1 Flow chart

Table 2: Performance of the DePreS

Cut-off	Sensitivity (95% CI)	Specificity (95% CI)	Positive predictive value (PPV) (95% CI)	Negative predictive value (NPV) (95% CI)	Youden's index
-5	0.82 (0.64-1.00)	0.33 (0.22-0.43)	0.22 (0.12-0.32)	0.89 (0.82-0.97)	0.15
-2	0.71 (0.49-0.92)	0.66 (0.55-0.76)	0.32 (0.17-0.46)	0.91 (0.82-1.00)	0.37
0	0.65 (0.42-0.87)	0.74 (0.64-0.84)	0.35 (0.19-0.52)	0.90 (0.80-1.00)	0.39
2	0.41 (0.18-0.65)	0.88 (0.81-0.95)	0.44 (0.19-0.68)	0.87 (0.71-1.03)	0.29
3	0.35 (0.13-0.58)	0.93 (0.88-0.99)	0.55 (0.25-0.84)	0.87 (0.66-1.07)	0.28
AUC: 0.71 (95% CI: 0.56-0.86)					

Abbreviations: CI=Confidence interval; n=Number; Youden's Index: = sensitivity + specificity - 1

Table 1: Patient Characteristics

	Netherlands n=48 (52%)	Germany n=45 (48%)
Sex, n (%)		
Male	30 (62.5)	27 (60)
Age, Mean (SD; min-max)	74 (11.8; 44-93)	66.7 (13; 44-91)
Type of stroke, n (%)		
Intracerebral heamorrhage	0	2 (4.4)
Ischaemic infarction	48 (100)	43 (95.6)
Symptoms, n (%)		
Motor	36 (75)	19 (42.2)
Sensory	12 (25)	16 (35.6)
Speech	19 (39.6)	14 (31.1)
Language	3 (6.3)	4 (8.9)
Visual	13 (27.1)	12 (26.7)
Vascular risk factors, n (%)		
Diabetes mellitus	10 (20.8)	18 (40)
Hypertension	31 (64.6)	33 (73.3)
Dyslipidemia	19 (39.6)	17 (37.8)
Smoking	12 (25)	13 (28.9)
Alcohol consumption	29 (60.4)	19 (42.2)
Discharge direction, n (%)		
Home	29 (60.4)	16 (35.6)
In-hospital Rehabilitation	19 (39.6)	27 (60)
Other	0	2 (4.4)
Barthel Index Mean (SD; min-max)		
1 week post stroke,	14 (5; 3-20)	16 (5; 2-20)
6-8 weeks post stroke	18 (4; 3-20)	18 (3; 7-20)
Major Depressive Disorder (CIDI), n (%)	11 (20.8)	7 (15.6)

Conclusion

- The good predictive accuracy of the DePreS is confirmed in a new sample of stroke patients. The AUC in this study is almost equal to the value found in the development study: 0.71 (95% CI: 0.56-0.86) vs 0.78 (95% CI: 0.72-0.85).
- The DePreS showed the best performance for the cutoff value of 0 with an acceptable to good specificity combined with an excellent negative predictive value.
- The high specificity and NPV indicate the DePreS being in particular appropriate for the identification of stroke patients who are not at risk of PSD. Hence, by using the DePreS clinicians are able to exclude for further diagnostic and treatment follow-up, patients not at risk for depression in the first week after stroke.

References

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