Additional files:

S1 Appendix. Formula of the Saga fall risk model 2 (SFRM-2)

Formula of model 2

−5.8563 + 0.0096 × (Age) + (Male = 0.5684) + (Emergency admission = 0.4418) + (Admitted department; Neurosurgery = 0.6520) + (Hypnotics; Using = 0.3612, Missing data = 0.2139) + (History of fall = 0.4362) + (Independence of eating; Independent = 0.2352, Missing data = −1.0436) + (Bedriddenness rank; J = 1.3758, A = 1.8317, B = 1.9186, C = 1.7205, Not assessable = −0.1505).

Predictive occurrence of fall during the administration (%)

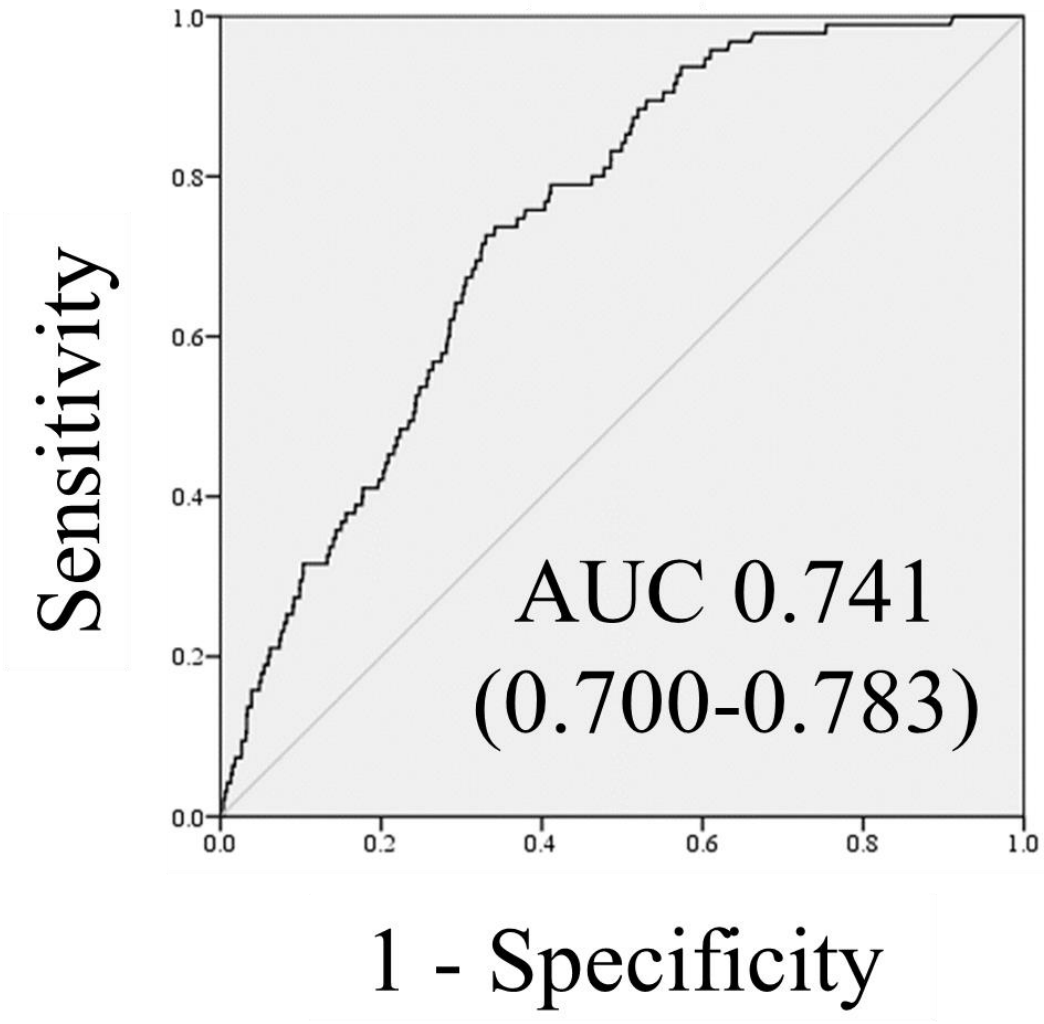
100 × exp(Score)/{1 + exp(Score)}.

S2 Appendix. Characteristics of Yuai-Kai Foundation and Oda Hospital

The hospital contains 11 departments with 111 beds for acute care. The departments are Internal Medicine, General Medicine, General Surgery, Cardiovascular Surgery, Neurosurgery, Otorhinolaryngology, Plastic Surgery, Dermatology, Radiology, Anesthesiology, and Rehabilitation. It has no Orthopedic Surgery department. The hospital is located in the city of Kashima, in Saga prefecture in southern Japan. It covers an approximate population of 90,000, and treats approximately 3,100 inpatients each year, with a mean length of stay of 12.1 days.

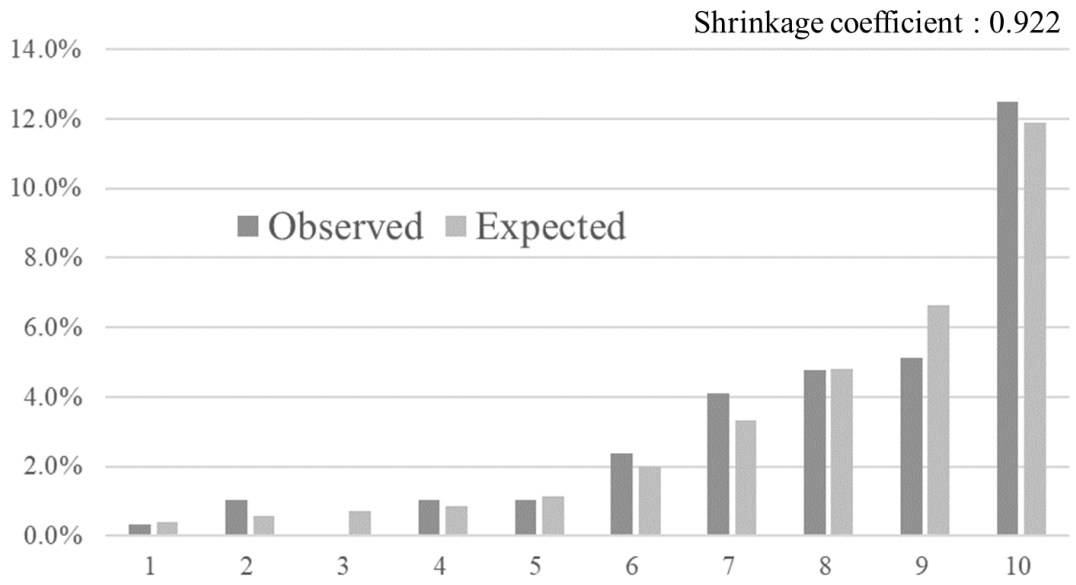
S1 Figure. Area under the receiver operating characteristic curve (AUC)

AUC of the predictive model for falls (Saga fall risk model 2) for all patients.



S2 Figure. Predicted and observed rates of falls in 10 groups divided into 10 deciles by scores using the predictive model (Saga fall risk model 2)

The gap between predicted and observed values was small enough to be used in the prediction of falls for either group, with excellent calibration of the model.



S1 Table. Characteristics of patients admitted to the department of neurosurgery

Variable, Category	Department, Neurosurgery n = 96
Age, years	80 (73-86)
Sex, Male	48 (50.0%)
Emergency admission, Yes	35 (36.5%)
Referral letter, Presence	38 (39.6%)
Hypnotic medications, Using	4 (4.2%)
Hypnotic medications, Missing	10 (10.4%)
Parkinson's syndrome, Presence	3 (3.1%)
History of falls, Presence	28 (29.2%)
Visual impairment, Presence	3 (3.1%)
Eating, Independent	54 (56.3%)
Eating, Requiring assistance	42 (43.8%)
Eating, Missing category	0 (0%)
Bedriddenness rank, Normal	26 (27.1%)
Bedriddenness rank, J	6 (6.3%)
Bedriddenness rank, A	22 (22.9%)
Bedriddenness rank, B	10 (10.4%)
Bedriddenness rank, C	32 (33.3%)
Cognitive function score, Normal	43 (44.8%)
Cognitive function score, I	16 (16.7%)
Cognitive function score, II	10 (10.4%)

Cognitive function score, III	16 (16.7%)
Cognitive function score, IV	8 (8.3%)
Cognitive function score, M	3 (3.1%)
Surgical operation, Undergone	19 (19.8%)
Rehabilitation, Undergone	55 (57.3%)
Length of hospital stay (days)	12 (2-28)

Continuous and categorical variables are shown as median value (interquartile range) and number (percent).

S2 Table. Characteristics of patients with or without rehabilitation during hospitalization

Variable, Category	Rehabilitation, None n=1,565	Rehabilitation, Undergone n=1,367
Age, years	74 (64-82)	83 (77-88)
Sex, Male	830 (53.0%)	633 (46.3%)
Emergency admission, Yes	294 (18.8%)	529 (38.7%)
Referral letter, Presence	322 (20.6%)	467 (34.2%)
Department, Internal Medicine	681 (43.5%)	742 (54.3%)
Department, Neurosurgery	41 (2.6%)	55 (4.0%)
Hypnotic medications, Using	168 (10.7%)	202 (14.8%)
Hypnotic medications, Missing	68 (4.3%)	103 (7.5%)
Parkinson's syndrome, Presence	9 (0.6%)	18 (1.3%)
History of falls, Presence	99 (6.3%)	256 (18.7%)
Visual impairment, Presence	20 (1.3%)	20 (1.5%)
Eating, Independent	1,314 (84.0%)	726 (53.1%)
Eating, Requiring assistance	250 (16.0%)	641 (46.9%)
Eating, Missing category	1 (0.1%)	0 (0.0%)
Bedriddenness rank, Normal	974 (62.2%)	301 (22.0%)
Bedriddenness rank, J	155 (9.9%)	139 (10.2%)
Bedriddenness rank, A	200 (12.8%)	328 (24.0%)
Bedriddenness rank, B	96 (6.1%)	234 (17.1%)
Bedriddenness rank, C	140 (8.9%)	365 (26.7%)

Cognitive function score, Normal	1,189 (76.0%)	589 (43.1%)
Cognitive function score, I	125 (8.0%)	211 (15.4%)
Cognitive function score, II	75 (4.8%)	165 (12.1%)
Cognitive function score, III	121 (7.7%)	303 (22.2%)
Cognitive function score, IV	35 (2.2%)	79 (5.8%)
Cognitive function score, M	16 (1.0%)	16 (1.2%)
Cognitive function score, missing	4 (0.3%)	4 (0.3%)
Surgical operation, Undergone	520 (33.2%)	436 (31.9%)
Length of hospital stay (days)	6 (3-10)	17 (11-27)

Continuous and categorical variables are shown as median value (interquartile range) and number (percent).