

When Stroke is the Life Ending Event.

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MacNeurology
Excellence in Care, Education, and Research

Mitigating Potential Bias (Provincial Stroke Rounds Committee)

The Provincial Stroke Rounds Committee mitigated bias by ensuring there was no industry involvement in planning or education content.

Objectives

1. Can we predict poor outcome after stroke?
2. What is the window of opportunity?
3. How can we work towards a good death?

90 Female

Lives with family

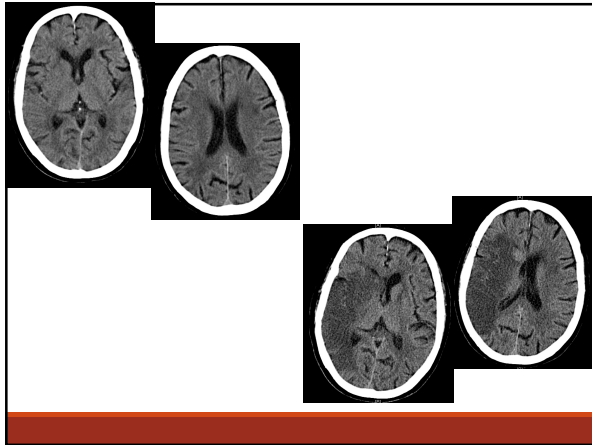
Hypertension, dyslipidemia, osteoarthritis

Recent hip pain limiting ambulation

mRS = 2

LSW at 11:30 am, found at home 18:30 hours left hemiplegia

NIHSS = 19



49 male

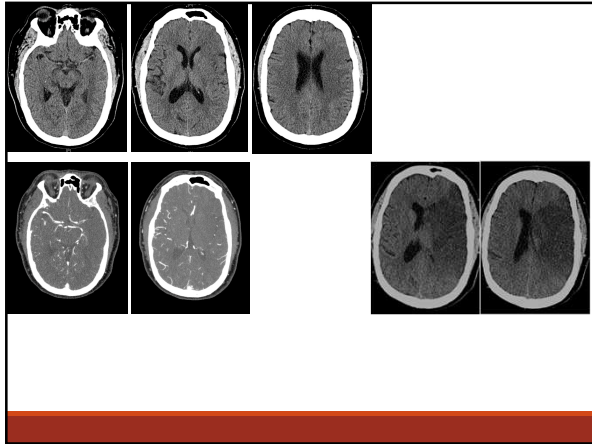
Unknown history

No known medications

Found at 1400 hours, unknown LSW

Right hemiplegia and aphasia, drowsy → intubated

NIHSS = 19

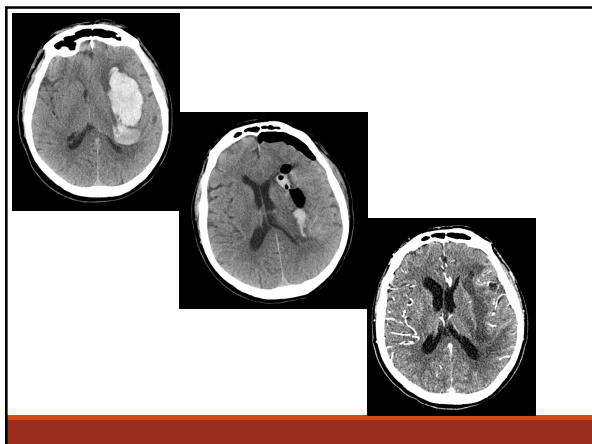


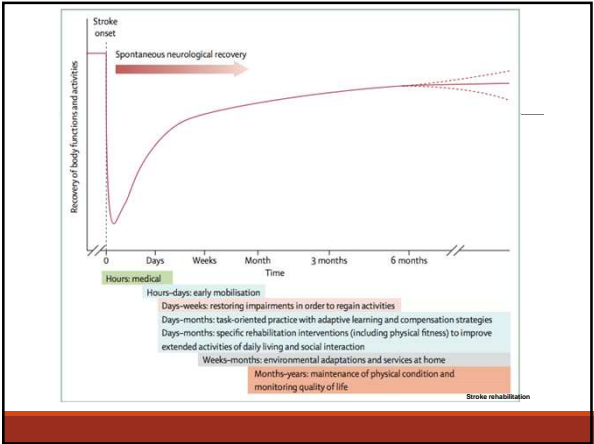
70 male

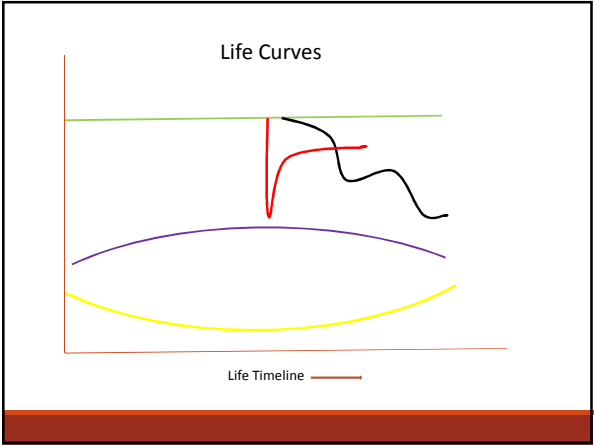
Hypertension, dyslipidemia
ASA 81, atorvastatin


November 10 vacationing in USA,

- Sudden right paresis and aphasia
- Stroke activation
- Rapid decrease in LOC – intubated – transferred to ICU







No symptoms at all	0	 modified Rankin Scale (mRS) <small>Dr. John Rankin (1923–1981) is one of the many distinguished alumni of the former University Department of Materia Medica and Therapeutics, Stobhill Hospital Glasgow. While his varied international career encompassed pulmonary physiology, occupational medicine and public health, he remains best remembered in the United Kingdom for his early stroke publications. In a series of articles published 50 years ago in the Scottish Medical Journal he described early rehabilitative stroke medicine using a novel grading system. Half a century on Rankin's eponymous stroke scale has become the endpoint of choice in acute stroke trials. This paper describes Rankin's remarkable career and the legacy of his work, with a particular focus on his stroke research and grading system.</small>
No significant disability despite symptoms; able to carry out all usual duties and activities	+1	
Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance	+2	
Moderate disability; requiring some help, but able to walk without assistance	+3	
Moderately severe disability; unable to walk and attend to bodily needs without assistance	+4	
Severe disability; bedridden, incontinent and requiring constant nursing care and attention	+5	
Dead	+6	

A Bedside Prediction Rule for Death and Severe Disability Following Acute Ischemic Stroke

Martin J. O'Donnell, MB, PhD; Jimmy Fang, MS, PhD; Cami D'Uva, MSc; Gustavo Sapoznik, MD; Linda Gould; Emer McGrath, MB; Maria K. Kypariz, MD, MSc, for the Investigators of the Registry of the Canadian Stroke Network

Characteristic	Item Score	Maximum Score
Preadmission medical comorbidities		5
Preadmission dependence	1.5	
Cancer	1.5	
Congestive heart failure	1.0	
Atrial fibrillation	1.0	
Level of consciousness		5
Reduced	5	
Age	1 Point per decade	10
Neurologic deficit		5
Arm weakness (significant/total)	2	
Leg weakness (significant/total)	2	
Neglect or aphasia	1	
Total		25

Abbreviation: PLAN, preadmission comorbidities, level of consciousness, age, and neurologic deficit.

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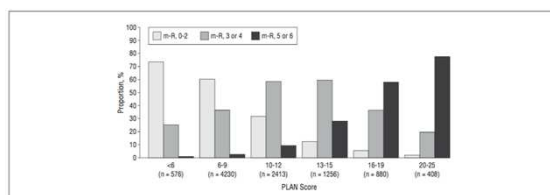


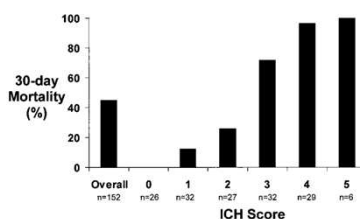
Figure 5. Proportion of patients with modified Rankin (m-R) categories at discharge by PLAN (preadmission comorbidities, level of consciousness, age, and neurologic deficit) score categories in the entire cohort. Modified Rankin score: 0 indicates no symptoms; 1, no significant disability despite symptoms (able to carry out all usual duties and activities); 2, slight disability (unable to carry out all previous activities but able to look after own affairs without assistance); 3, moderate disability (requiring some help but able to walk without assistance); 4, moderately severe disability (unable to walk without assistance and unable to perform most activities of daily living, but able to move around the house); 5, severe disability (bedridden, incontinent, and requiring constant nursing care and attention); and 6, dead. Data were available for 9765 patients (98.2%).

A Simple, Reliable Grading Scale for Intracerebral Hemorrhage

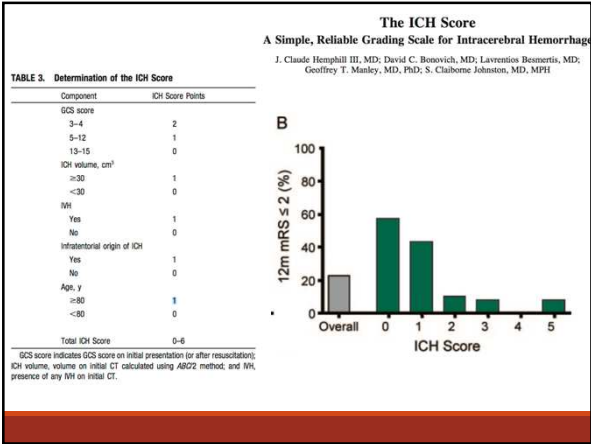
J. Claude Hemphill III, MD; David C. Bonovich, MD; Lavrentios Besmertis, MD; Geoffrey T. Manley, MD, PhD; S. Claiborne Johnston, MD, MPH

TABLE 3. Determination of the ICH Score

Component	ICH Score Points
GCS score	
3-4	2
5-12	1
ICH volume, cm ³	
>30	1
<30	0
NIH	
Yes	1
No	0
Intracranial origin of ICH	
Yes	1
No	0
Age, y	
≥80	1
<80	0
Total ICH Score	0-5



GCS score indicates GCS score on initial presentation (or after resuscitation); ICH volume, volume on initial CT calculated using ABC2 method; and IVH, presence of any IVH on initial CT.



The Window of Opportunity

Physicians sometimes refer to a “window of opportunity” for withdrawing sustaining treatment in patients with acute severe brain injury.

There is a period critical illness and physiological instability when treatment withdrawal is likely to be followed by death, but prognosis is less certain.

Delaying decisions is associated with greater prognostic certainty but at the risk that the patient is not dependent on life support but survives with very severe disability.

**The Window of Opportunity
for Treatment Withdrawal**
Dominic Wilkinson, MBBS, BMedSci, MRCPsych, DPhil, FRACP
Arch Pediatr Adolesc Med. 2011;165(3):211-215

Table 1. Competing Considerations of Early Withdrawal vs Late Withdrawal

Early Withdrawal of Treatment	Later Withdrawal of Treatment
More uncertainty about prognosis	Less uncertainty about prognosis
Lower risk of survival with severe disability because patient is more physiologically unstable	Higher risk of survival with severe disability because patient is less dependent on life support
Less time for caregivers to decide; risk of rushed decisions and later regret	More time for surrogates to come to terms with prognosis and decide about treatment
Withdrawal of life support easier, with prolonged death and patient suffering less likely	May require consideration of withdrawal of artificial nutrition—more controversial, and may lead to prolonged dying

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Window of Opportunity in Treatment Decisions

Negative connotation – withdrawal is never opportune

- There is always uncertainty
- There is minimal burden with a short period of ventilation
- Patients with severe brain injury do not recover a respiratory drive
- There is always an option of withdrawal of artificial nutrition

In some situations survival may be the greater misfortune than death

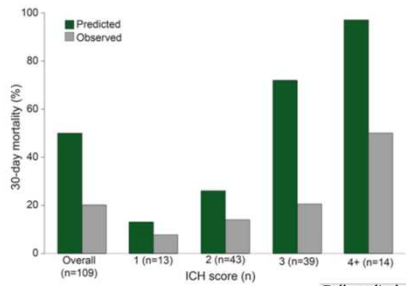
- It is sometimes permissible to withdraw treatment when the burden of life will be great

- Patients with severe brain injury do recover respiratory drive
- Withdrawal of artificial nutrition may cause suffering

The Window of Opportunity for Treatment Withdrawal

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Figure 2 Predicted and observed mortality



Full medical support for intracerebral hemorrhage
Neurology® 2015;84:1739-1744

Table 2 Survival and functional outcome and at 30 and 90 days

Characteristic	30 d	90 d
No. with data	109	107*
Modified Rankin Scale score, n (%)		
0	1 (0.9)	1 (0.9)
1	1 (0.9)	3 (2.8)
2	1 (0.9)	6 (5.6)
3	13 (11.9)	22 (20.6)
4	30 (27.5)	23 (21.5)
5	41 (37.6)	23 (21.5)
6 (deceased)	22 (20.2)	29 (27.1)

* Two patients were lost to follow-up between 30 and 90 days (one left the country with no further contact possible and one requested to not be contacted for future follow-up).

Full medical support for intracerebral hemorrhage
Neurology® 2015;84:1739-1744

Patient Outcomes

90 female - right MCA infarction

- mRS 5-6 = 55%, mRS 3-4 = 40%, mRS 0-2 = 5%

49 male - left MCA infarction

- mRS 5-6 = 25%, mRS 3-4 = 55%, mRS 0-2 = 20%

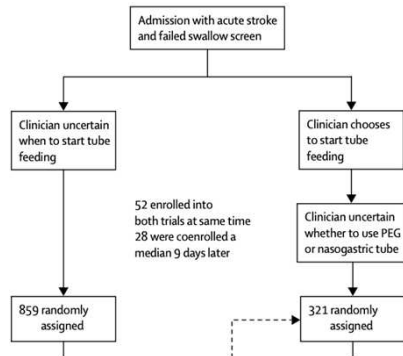
70 male - left ICH

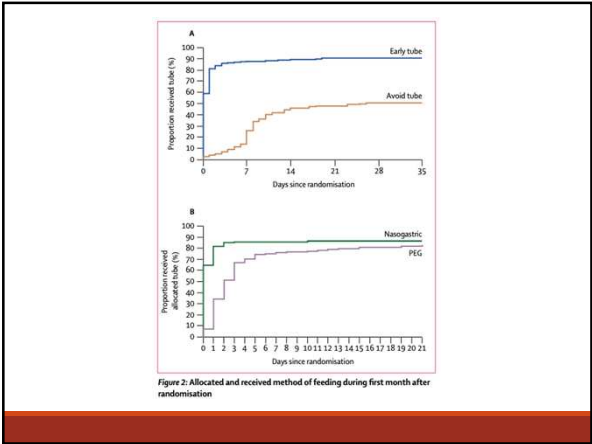
- 30 day mortality = 25%, mRS 0-2 = 10%

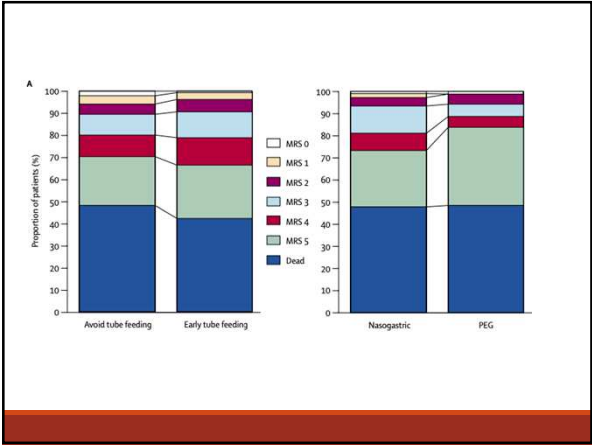
Articles

Effect of timing and method of enteral tube feeding for dysphagic stroke patients (FOOD): a multicentre randomised controlled trial

Lancet 2005; 365: 174-72 The FOOD Trial Collaboration*







AHA/ASA Scientific Statement

Palliative and End-of-Life Care in Stroke
A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

Primary Palliative Care: Recommendations

1. All patients and families with a stroke that adversely affects daily functioning or will predictably reduce life expectancy or quality of life should have access to and be provided with primary palliative care services appropriate to their needs (*Class I; Level of Evidence B*).

Palliative Medicine 2007; **21**: 323-331

Palliative care in stroke: a critical review of the literature

T Stevens, SA Payne International Observatory on End of Life Care, Lancaster University, **C Burton** University of Central Lancashire, Lancashire, **J Addington-Hall** University of Southampton, Southampton and **A Jones** Sheffield Teaching Hospitals NHS Trust, Sheffield

10 - 15% of patients with ischemic stroke die as a result of the stroke

20 - 30% of patients with hemorrhagic stroke die as a result of the stroke

62% of patients with stroke die in hospital

- 47% of cancer patients die in hospital

27% of patients with stroke die in nursing homes

- 14% of cancer patients die in nursing homes

9% of patients with stroke die in their own home

- 36% of cancer patients die in their own home

End-of-life issues in acute stroke care: a qualitative study of the experiences and preferences of patients and families

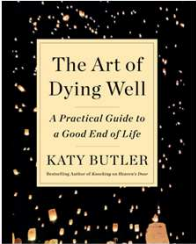
Palliative Medicine
24(2): 146-153
© The Author(s) 2010

- Knowledge and awareness of stroke
- Information sources
- Place of care preference
- Experiences since stroke
- Perceptions of the future

Figure 1. Topics covered in patient and family member interviews.

Where death was a possibility for patients, no family members mentioned being offered the possibility of bring the patient home to die.

Perhaps inevitably given the stressful situation family members were in, and the potential for a lack of certainty about patient outcome, communication between family members and health professionals emerged as a key theme in the analysis.

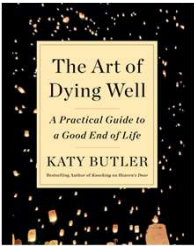


The Art of Dying Well

A Practical Guide to a Good End of Life

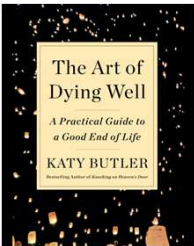
KATY BUTLER
Renowned Author of Knowledge as Power and Other Essays

Most people don't want to die in a hospital, but many do, thanks to bad luck, a sudden catastrophic turn for the worse, or a lack of realism, planning, or practical support. No matter how unexpected the situation, people do find ways to humanize hospital deaths and create at least some sense of a rite of passage.



The Art of Dying Well

RESPECT protocol. All blood draws, diagnostic tests, and taking of vital signs are halted. Medical treatment is limited to pain management. A sign is put on the outside of the patient's door, so that staff doesn't disturb the family. Nurses are encouraged to make sure that there's a seat in the room for every family member, and that everyone is warm and comfortable.



The Art of Dying Well

We are still a long way from the day when every hospital has "dying rooms" as calm, pretty, and homey as their "birthing rooms."

Things to consider:

1. Are we good at predicting a poor outcome and offering a window of opportunity?
2. Are we approaching end of life care as aggressively as other areas of acute stroke care.
3. Have we provided our patients and their families with a good death?
