Prognosis After Stroke

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Patients who suffer from an acute stroke often cannot make informed medical decisions and may not have advance directives. The rapidity of its onset often means that the burden of whether to pursue placement in a nursing home and/or life-prolonging measures such as artificial feeding, falls on unprepared loved ones. This Fast Fact reviews clinical factors and tools which could help in prognostication and medical-decision-making for stroke patients.

Accuracy of Clinician Predictions

Stroke-related morbidity and mortality improved significantly between 1995 and 2010 (2). Still, prognostication following stroke, even when done by neurologic specialists, remains overly optimistic (1). In general, predictions of a poor outcome (death or severe disability meaning a life of complete dependence) remain relatively reliable (90% accurate in one study), but <1/2 of the predictions for a good outcome were accurate (3). One unanswered and debated clinical question is whether a clinician's prediction of a poor outcome, especially if made early after the stroke, increase the likelihood that families will withdraw life-sustaining treatment (4,5), and thereby becomes a self-fulfilling prophecy. To our knowledge, there are no studies which have assessed the prognostic accuracy of palliative care clinicians for post-stroke patients.

Early Prognostic Factors

Stroke scales and other prognostic factors have been recognized to help predict morbidity and mortality in the first few days of a hospitalization. This data is often utilized to triage and guide immediate post-stroke decisions by neurologists, generalist clinicians, or intensive-care clinicians. The most commonly used and studied is the National Institute of Health Stroke Scale (NIHSS) which is also used as a gold standard (6). The Modified NIHSS (mNIHSS) and the Scandanavian Stroke Scale (SSS) are similarly notable scales which have been shown to have comparable reliability to the NIHSS yet may be easier to use and have better interrater reliability (7,9). Unfortunately, all these scales (including the NIHSS) are similarly optimistic and likely less accurate than clinician gestalt (6-9). While high scores (e.g. an NIHSS score >16) reliably predict poor outcomes at 3 months, low or intermediate scores are of minimal value. Other "early" prognostic factors correlated with poor outcomes include age > 75, female gender, embolic stroke type, hemorrhagic conversion, onset to treatment > 2 hours, ED stay > 8 hours, failure to receive tPA, failure to receive treatment in a dedicated stroke unit, low income (except in universal healthcare systems), and poor social support.

Late Prognostic Factors

Often times palliative care specialists are not consulted until several days after an acute stroke at which point these "later" prognostic factors take on greater importance in the decision-making process. Dysphagia that persists 3-7 days after a stroke is associated with worse 1-year functional outcomes (11). Additionally, data suggest that only 10-15% of post-acute stroke patients who require a gastric feeding tube ever make it home. Post-stroke coma lasting > 3 days and an absent response to verbal stimuli at 3 days or later have been associated with poor outcomes as well (15), while active finger extension (at least able to resist gravity) at 7 days is correlated with a more favorable functional outcomes at 6 months (16). For surrogates considering withdrawal of ventilatory support for post-stroke patients and a transition to comfort as the primary goal of care, survival times generally range between 10 minutes to 11 days with a median survival of 7.5 hours (13). Multiple studies suggest the greatest neurologic recovery from a stroke occurs in the first 6 months (13-16).

Palliative Care Considerations

For clinicians and surrogates faced with these challenging post-stroke decision-making situations, exploring the patient's values and identifying things that matter most to the patient should guide treatment choices. The common dilemma surrogates face is taking a small chance for meaningful functional recovery while

a patient remains in what is often a completely dependent state for potentially months to years vs deciding to forgo or discontinue nutritional support which will invariably result in death. Evidence suggests that 75% of families prefer a shared or collaborative decision-making model in stroke care vs unilateral physician or surrogate decision making (13). Decision-making tools such as the best case-worst case scenario may be helpful methods to achieve informed and collaborative value-based decisions for both patients and surrogates of post-stroke patients (17). Considering that survey data suggest that clinicians may be prone to disability biases in post-stroke patients (meaning clinicians who are not disabled predict poorer life satisfaction and poorer resiliency than is reported by individuals disabled by the illness) (1,12), in certain circumstances it may be reasonable to give a trial of nasogastric feedings for 3-7 days immediately after a stroke. If there is no significant neurologic recovery at that point and surrogates are still having significant difficult deciding, a 3-6-month time-limited trial of skilled nursing facility placement with artificial nutrition via a more permanent feeding tube could be reasonable if there is adequate follow up to readdress goals of care if quality of life has not improved to an acceptable level.

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