



Prognostication or predestination?

Dear Editor,

Patients treated in neurosurgical Intensive Care Units (ICUs) for acute intracranial conditions often lack capacity to make decisions about their own healthcare. In these patients, medical decisions are often made with input from patient surrogate decision makers such as family, friends, or legal representatives as part of a process of shared decision-making (Kon et al., 2016). This involves integration of the clinical information and prognosis, as conveyed by the clinical team, with the patient's wishes and values, as presented by their surrogate decision makers. When the burden of aggressive treatment and/or survival is jointly deemed to exceed any associated benefit, withdrawal or withholding of life-sustaining treatment (WLST) is often chosen to avoid a health state the patient would perceive as equivalent to or worse than death (Geurts et al., 2014).

In such cases, the prognostic outcome information that is available to both clinicians and surrogate decision makers, for example the condition-specific mortality after spontaneous intracranial haemorrhage (ICH), is crucial. Yet this information is partially subject to a causality loop when withdrawing or withholding life sustaining treatment is involved. More specifically, treatment decisions (including WLST) regarding current patients influence overall outcomes and these outcomes in turn influence treatment decisions in future patients (Alkhachroum et al., 2021). This means that outcomes are not only a result of the condition's natural history and but also incorporate previous stakeholders' choices regarding that condition. This creates a self-fulfilling prophecy which distorts the true clinical prognosis (Mertens et al., 2022).

Withdrawal of life sustaining treatment is a deeply personal choice which honours patients' autonomy, but herein lies the issue: choices to withdraw or withhold treatment are based on personal, social, cultural, and religious values regarding quality of life that are only partly associated with the medical condition itself. These values would still apply for any condition with similar prognosis. The consequences are potentially significant. On one hand, conditions with high prevalence of WLST will appear to have inflated mortality, which in turn leads to inaccurate prognosis estimates, potentially perpetuating the cycle of WLST-mortality inflation. On the other hand, due to selection of patients with better neurology, the outcomes among survivors may appear spuriously optimistic. The more prevalent WLST is, the more pronounced its distortive effect, often negating the predictive value of other disease-related factors (Becker et al., 2001).

One might argue that this is only a theoretical concern, since WLST is usually implemented in patients whose neurological disability is severe by any standard. Indeed, for some patients severe disorders of consciousness or disability may be equivalent or worse than death but for others it is not. Additionally, early timing of WLST often provides only a very narrow window for appropriate neurological prognostication. In

one study of patients with spontaneous ICH (Alkhachroum et al., 2021), as many as 25.6% had WLST and in half of them WLST happened within the first 48 hours after admission to ICU.

High-quality personalised medicine requires respect of patients' autonomy and WLST is often an integral part of that. In view of this apparent dilemma, good communication with shared decision makers, diligent workup and, importantly, recognition of our prognostic uncertainty may prove to be more valuable than any mortality statistic. Importantly though, in an era of frequent WLST, disease registries need to keep records regarding the occurrence and aetiology behind limitations in treatment so that patients, surrogates and clinicians can tell apart true prognostication from predestination.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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