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Focal Point: Trials for neurodegenerative diseases: time to innovate

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The remarkable progress in our understanding of the mechanisms underlying neurodegenerative diseases heralds an era when neurologists would be at the vanguard of regenerative medicine, instead of chroniclers of decline. To capitalise on these advances that are identifying ever more therapeutic candidates, whether repurposed or entirely new, there is an urgent need for refined methods to test these putative medicines in clinical trials. Our field has the opportunity to learn from innovations in trial design, particularly those pioneered in oncology.

Complex trial designs that include a multi-arm, multi-stage model offer considerable advantages over the standard two-arm trial, with substantial efficiency gains in time, cost, and resources. A multi-arm, multi-stage model can incorporate simultaneous testing of multiple interventional arms with a single standard-of-care arm, allow for prespecified adaptation at interim points of analyses, and include new interventional arms. For instance, the landmark STAMPEDE platform trial for prostate cancer¹ has evaluated eight treatments in 16 years. Its findings have led to four changes in standard-of-care, in a much shorter timeframe than that required for a conventional approach of a sequential two-arm trial.

Akin to the creative Cajal Embroidery Project (appendix)—a collaborative, inclusive effort² comprising neuroscientists and non-neuroscientists—we have created a consortium named ACORD (A Collaboration Of groups developing, Running and reporting platform trials in neurodegenerative Diseases), hosted by the Medical Research Council Clinical Trials Unit at University College London (London, UK), to improve trial design for neurodegenerative conditions, including platform trials for motor neuron disease (MND-SMART, NCT04302870) and multiple sclerosis (OCTOPUS, EUDRACT 2021-003034-37). This consortium and other initiatives are key to realising the promise of regenerative neurology sooner, rather than later.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

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2. Mehta AR, Abbott CM, Chandran S, Haley JE. The Cajal Embroidery Project: celebrating neuroscience. *Lancet Neurol.* 2020; 19 :979.