Revised Airlie House consensus guidelines for design and implementation of ALS clinical trials

Leonard H. van den Berg, MD, PhD, Eric Sorenson, MD, Gary Gronseth, MD, et al., for the Airlie House ALS Clinical Trials Guidelines Group

Cite as: Neurology® 2019;92:e1610-e1623. doi:10.1212/WNL.0000000000007242

Study objective and summary result
This study aimed to revise the 1999 Airlie House consensus guidelines for designing and implementing preclinical therapeutic studies and clinical trials involving patients with amyotrophic lateral sclerosis (ALS), and it developed a 2018 revised version of the guidelines.

What is known and what this paper adds
Consensus guidelines for clinical trials involving patients with ALS were published in 1999, but the accumulation of clinical trial experience and new information about ALS since 1999 necessitates the revision of the consensus guidelines. This study provides the needed revisions.

Participants and setting
A 3-day meeting with 140 leading members of the ALS community, including researchers, clinicians, biostatisticians, patient representatives, research-funding agency representatives, industry representatives, and regulatory agency representatives, was held at the Airlie House Conference Center in Warrenton, VA, in March 2016.

Design, size, and duration
The meeting aimed to address 9 key considerations relevant to ALS clinical trials: (1) preclinical studies; (2) the biological and phenotypic heterogeneity of ALS; (3) outcome measures; (4) disease-modifying and symptomatic interventions; (5) recruitment and retention; (6) biomarkers; (7) clinical trial phases; (8) moving beyond traditional trial designs; and (9) statistical considerations. This study used a modified Delphi consensus process to develop draft consensus guidelines that were reviewed and modified after a public consultation period.

Main results and the role of chance
This study developed a list of 112 guidelines, including 15 high-priority guidelines calling for practices such as collecting DNA whenever possible, training study examiners to ensure uniform assessments, and publishing both positive and negative results.

Table Sample guidelines

<table>
<thead>
<tr>
<th>Domain</th>
<th>Key guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preclinical studies</td>
<td>Provide a firm biological rationale for advancing a therapeutic candidate to clinical trials</td>
</tr>
<tr>
<td></td>
<td>Conduct independent preclinical validation studies of therapeutic candidates</td>
</tr>
<tr>
<td>Disease-modifying and symptomatic interventions</td>
<td>If a symptomatic intervention is effective, consider permitting its use for trial participants</td>
</tr>
<tr>
<td></td>
<td>Symptomatic therapies and medical devices should be tested in controlled trials</td>
</tr>
<tr>
<td>Biomarkers</td>
<td>Biomarkers should be reliably quantifiable</td>
</tr>
</tbody>
</table>

Bias, confounding, and other reasons for caution
The quality of available evidence limited the option of a truly evidence-based approach.

Generalizability to other populations
These guidelines were written to reflect an understanding of the particular features of ALS. This may limit their generalizability as guidelines for clinical research into other conditions.

Study funding/potential competing interests
This study was funded by the NIH, various pharmaceutical companies, and various foundations. Some authors report serving on journal editorial boards, receiving funding from various foundations and governments, and receiving grants, consulting fees, lecture honoraria, and committee appointments from various healthcare companies. Dr. Gronseth reports serving as Associate Editor for Neurology® and receiving compensation from the American Academy of Neurology. Go to Neurology.org/N for full disclosures.

A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The authors of the full-length article and the journal editors edited and approved the final version.
Revised Airlie House consensus guidelines for design and implementation of ALS
clinical trials
Neurology 2019;92;e1610-e1623 Published Online before print March 8, 2019
DOI 10.1212/WNL.0000000000007242

This information is current as of March 8, 2019

Updated Information & Services
including high resolution figures, can be found at:
http://n.neurology.org/content/92/14/e1610.full

References
This article cites 49 articles, 11 of which you can access for free at:
http://n.neurology.org/content/92/14/e1610.full#ref-list-1

Citations
This article has been cited by 9 HighWire-hosted articles:
http://n.neurology.org/content/92/14/e1610.full##otherarticles

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
All Clinical trials
http://n.neurology.org/cgi/collection/all_clinical_trials
Amyotrophic lateral sclerosis
http://n.neurology.org/cgi/collection/amyotrophic_lateral_sclerosis_
Clinical trials Methodology/study design
http://n.neurology.org/cgi/collection/clinical_trials_methodology_study
_design_

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.neurology.org/about/about_the_journal#permissions

Reprints
Information about ordering reprints can be found online:
http://n.neurology.org/subscribers/advertise