The Bioethics of Stem Cell-Based Clinical Trials

Insoo Hyun, PhD
Associate Professor of Bioethics and Philosophy
Member: ISSCR Ethics and Public Policy Committee

What is a Trial?

• Trial (trier – Anglo-French “to try.”)

An organized process of testing or examination to determine whether something is or is not the case.

Criminal trials
Time trials
Sea trials
Clinical trials
Common features of trials

- They test matters of uncertainty.
- They must be reliable and objective.
- They are of (different) interest to different parties.
- They have agreed-upon endpoints or clear stopping rules.
Patients’ perspectives

Trial by ordeal.
Patients’ perspectives
Patients’ perspectives

- Therapeutic misconception.
- Therapeutic hope.
Others’ perspectives
Others’ perspectives

• Society.

• Those administering the clinical trial.
  - Researchers (clinician scientists).
  - Funders.
  - Regulators (FDA, IRB, DSMB).
**Stem Cell-Based Clinical Trials: Scientific Challenges**

- Assays for cell potency and standardization of manufacturing methods.
- Genetic stability of manufactured cells.
- Relevant data from animal studies.
- Appropriate tissue-specific delivery of cells.
Stem Cell-Based Clinical Trials: Scientific Challenges

- Detection of the survival and functioning of transplanted cells.
- Immune tolerance for allogeneic (donor) cells.
- Proof of concept to drive venture capital and industry involvement for later stage clinical trials.
- Trial design.
Stem Cell-Based Clinical Trials: Trial Design Challenges

• “Lifetime” research.

• Parkinson’s disease example.
Stem Cell-Based Clinical Trials: Trial Design Challenges

- What stage of the disease?
- What age?
- What sample size?
  - The Problem of Complexes
  - The Problem of Polygenic Effects
  - The Problem of False Negatives
Stem Cell-Based Clinical Trials: 
Trial Design Challenges

• What control groups?
  - Placebo group?
    -- Sham surgery with blinding?
  - Intra-patient study?
  - Another active treatment arm?
  - Observation study? (150 pts. with early onset PD)
Stem Cell-Based Clinical Trials: Trial Design Challenges

• What endpoints?
  - Demonstrate survival and appropriate cell behavior of transplanted product?
  - Global measures – does the pt. feel better?
  - Clinical measures?

Maybe having a choice of more alternatives is more important for patients, even if CBT < DBS.
Stem Cell-Based Clinical Trials: Trial Design Challenges

- Ethical rules for study withdrawal (by investigator, funder, regulator, subject).

- Research subject for how long? ("Lifetime" research)
  - Who should be the physician in charge after the investigator leaves?
Patients’ perspectives

• What do patients need to know for informed consent, as identified by patients, not by others?

• A deeper philosophical reason for including patients’ perspectives in trial design…
Uncertainties and the need to struggle with incommensurable values.
Thank you

insoo.hyun@case.edu