How to Perform Randomized Clinical Trials on VQI Platform:
Lessons from the OVERPAR Trial

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Randomized Clinical Trials: Basic Background

- Randomized clinical trials are gold standard of clinical studies
- Many Strengths of RCT:
  - Allows for hypothesis testing
  - Assignment of intervention
  - Randomization reduces bias
  - Allows for discrimination between causation and association
- RCTs are not possible when there are issues with:
  - Presence of Clinical Equipoise:
    - “Genuine uncertainty as to the benefits or harm from an intervention among the expert medical community”
  - Ethical issues
  - Feasibility to be able to conduct the study in a prospective fashion
  - $$$$$$$$

Elements to Develop a Randomized Clinical Trial to Answer a Clinical Question: P.I.C.O.

Population
Intervention
Answer
Control
Outcome Measure

VQI Has P.I.C.O.

- Allows for inclusion of a diverse population with vascular disease
  - By a diverse group of providers
  - Excellent data collection on the treatments of disease (i.e. intervention vs. control)
- Outcomes are always collected for all the procedures

Open vs. Endovascular Repair of Popliteal Artery Aneurysm (OVERPAR) Trial
An Example of CT on VQI Platform
Mohammad H. Eslami, Phil Goodney, and Alik Farber

Disclosure
Nothing to disclose.
First Rule of RCT: Is there Equipoise?

- **OVERPAR:**
  - Many studies suggest that there is clinical equipoise between OPAR and EPAR in treatment of PAA
  - Many vascular procedures may have clinical equipoise
  - These procedures are already collected in VQI
    - Open vs. endovascular interventions for CLI
    - Carotid stenting vs. carotid endarterectomy
    - Timing of carotid endarterectomy
    - Etc...

Clinical Trials Should Allow for Hypothesis Testing: OVERPAR Hypotheses

- **Primary hypothesis:**
  - Major adverse limb event (MALE)-free survival is lower in the EPAR vs. OPAR group.
- **Secondary hypotheses:**
  - EPAR will be associated with
    - more secondary interventions
    - improved independent living status
    - increased ambulatory status
    - improved quality of life
    - decreased LOS

OVERPAR vs. P.I.C.O. of RCTs

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<tr>
<th>Population</th>
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<tbody>
<tr>
<td>Control</td>
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<tr>
<td>Intervention</td>
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<td>Outcome Measure</td>
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Data in VQI

Randomization Reduces Bias and Variability: OVERPAR Design

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Defined Outcomes: The OVERPAR Trial

- **Primary Outcome:**
  - MALE-free survival
  - Adjusted from OPG guidelines to include minor interventions
- **Secondary Outcomes**
  - Clotted
  - Compartment syndrome
  - Postoperative death
  - Freedom from secondary interventions
  - Number of interventions
  - Primary, primary-assisted and secondary patency rates
  - Procedure duration
  - 30-day freedom from perioperative MACE
  - Other perioperative complications

Majority of outcomes of interest are collected in VQI Databases

Patient Follow-up

0 1 12 24 36 48

Scheduled post-op visits (months)

M2S Agreed to keep record of patients enrolled in OVERPAR beyond current timelines

*Morgan et al. *J Vasc Surg* 2001; 33: 679-87*
## Budget of OVEPAR

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<th>Year 3 ($)</th>
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![Average NIH RO1 Grant](image)

**More than 23 centers agreed to participate, but…**

- **$$$$**
  - Centers reluctant to spend time to get their own IRBs
  - No industry partners
  - No protected time for the investigators
  - Randomization issues
  - “Hard to convince patients to have either open or endovascular procedures”

**Why OVERPAR Failed?**

**VQI Provides a Robust Platform to Perform Randomized Clinical Trials**

- Many relevant questions can be answered within the scope of data already collected by the VQI in a prospective fashion
- Using data collection resources already in place for VQI significantly reduces necessary budget
- RCTs conducted through VQI can provide “real world answers” about a clinical question

**Thank You**