Double-Blind, Randomized, Placebo-Controlled Phase III Clinical Trial to Evaluate the Efficacy and Safety of treating Healthcare Professionals with the Adsorbed COVID-19 (Inactivated) Vaccine Manufactured by Sinovac: A structured summary of a study protocol for a randomised controlled trial

Valerie Lau

Follow this and additional works at: https://scholarscompass.vcu.edu/mjc

Part of the Medicine and Health Sciences Commons

© The Author(s)

Downloaded from https://scholarscompass.vcu.edu/mjc/9

This Article Presentation is brought to you for free and open access by VCU Scholars Compass. It has been accepted for inclusion in VCU's Medical Journal Club: The Work of Future Health Professionals by an authorized administrator of VCU Scholars Compass. For more information, please contact libcompass@vcu.edu.
Double-Blind, Randomized, Placebo-Controlled Phase III Clinical Trial to Evaluate the Efficacy and Safety of treating Healthcare Professionals with the Adsorbed COVID-19 (Inactivated) Vaccine Manufactured by Sinovac: A structured summary of a study protocol for a randomised controlled trial

Authors: Ricardo Palacios, Elizabeth Gonzalez Patino, Roberta de Oliveria Piorelli, Monica Tilli Reis Pessoa Conde, Ana Paula Batista, Gang Zeng, Qianqian Xin, Esper G. Kallas, Jorge Flores, Christian F. Ockenhouse & Christopher Gast

Published: 15 October 2020

Valerie Lau
## Context

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vaccines are given to humans; small sample size (&lt;100)</td>
<td>1. Sample size increases (100-1000)</td>
<td>1. Large sample size (13,060 participants)</td>
</tr>
<tr>
<td>2. Given to healthy humans (ensure the efficacy of the vaccine)</td>
<td>2. More representative sample group (age, gender, underlying diseases); not just healthy individuals</td>
<td>2. Still matching demographics of population</td>
</tr>
<tr>
<td>4. Dosage: (Upper limit vs lower limit)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Vocabulary Words

Randomized- Participants had an equal probability of being placed into control vs experimental group

Multicenter- Trials took place at multiple centers (Brazil)

Endpoint driven- At the end of the clinical trial, researchers can use the statistics to conclude whether the intervention technique was beneficial

Double blind- Neither the participants nor the experimenter are aware of which group the participants fall into (Control group vs. experimental group); minimize bias

Placebo controlled- One group is given a placebo vs the other receiving treatment

Adverse reaction- Any reactions that have a casual relationship to vaccination
Sinovac Vaccine

- Vaccines work by imitating an infection (usually involving inactivated viral components); helps acquire immunity; production of T-lymphocytes (destroy infected cells and make antibodies) and B-lymphocytes (target pathogens)

- Sinovac Vaccine
  - Manufactured by Sinovac Life Sciences (Beijing, China)
  - Inactivated vaccine- genetic material of the pathogen is eliminated by heat, radiation, or chemicals; cannot replicate or cause illness
  - Immune response is not as strong as live attenuated vaccines (virus is weakened; can’t cause major illness but can still replicate)
  - Less long lasting
  - Requires booster doses
<table>
<thead>
<tr>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 18 years or older, both genders, healthy/underlying diseases</td>
</tr>
<tr>
<td>- Health care professionals in close contact with COVID-19 patients</td>
</tr>
<tr>
<td>- Pregnant women, those breastfeeding, or plans to conceive within three months of receiving vaccine were excluded</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Randomized based on age (18-59 years and 60 years and older)</td>
</tr>
<tr>
<td>- Two randomization groups</td>
</tr>
<tr>
<td>- 11,800 (18-59 year-old)</td>
</tr>
<tr>
<td>- 1,260 elderly (above 60 year-old)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assignments (cont.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Half of the participants in each group were given the treatment and half were given the placebo</td>
</tr>
<tr>
<td>- Used a centralized randomization system for assignment</td>
</tr>
</tbody>
</table>
**Design**

**Step 3**
- Schedule
  - Vaccine and placebo (0.5mL doses) were given as IM injections (deltoid) in a two week interval

**Step 4**
- Outcomes
  - Assessment of efficacy based on WHO standards (protection level above 50%)
  - Primary efficacy endpoint- incidence of symptomatic cases of COVID-19 two weeks after second injection (diagnosed clinically)
  - Primary safety endpoint- any adverse reactions one week after vaccination in both groups

**Experimentation**
- Vaccine includes 3 ug/ 0.5 mL of the inactivated SARS-CoV-2 virus
- Adjuvant- aluminium hydroxide (helps boost the immune response)
  - Antigen remains for a longer period of time
- Placebo- aluminum hydroxide in 0.5 mL solution

**Schedule**
- Vaccine and placebo (0.5mL doses) were given as IM injections (deltoid) in a two week interval
Discussion Questions

1. As the vaccine supply increases, do you think the people receiving the vaccine should be given a choice as to which one they want to receive?

2. What are your thoughts on the smaller sample size of senior citizens (1,260 participants above 60) compared to the other group (11,800 18-59 year-old). Should this Phase III trial have included more senior citizens because they are the most vulnerable group?

3. Moderna has started testing their vaccines on babies and young children, do you think that they should’ve started with the older children first? Since young children typically do not get severely ill.
Citations

