



# EXPERIMENTAL SURVEY OF BLEEDING TIME AND CLOTTING TIME ON COVID-19 VACCINATED VOLUNTEERS VS NON VACCINATED VOLUNTEERS

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**ABSTRACT:** A novel human corona virus, severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), was identified in China in December 2019. On January 30, 2020 the World Health Organization declared the outbreak of Public Health Emergency of International Concern due to increasing concerns over its fast spread. Vaccines represent the key weapon in fighting against COVID-19 for saving life's and ending this pandemic. Vaccines help human bodies to develop immunity against COVID-19. The vaccines that have been approved for emergency public use include COVAXIN, COVISHIELD, SPUTNIK-V. This vaccine provides the immunity against COVID19 by identifying it quickly and fight against it .It's common to experience some mild to moderate side effects when receiving vaccinations this is because your immune system instructs your body to react in certain ways. Some of the common side effects include pain, redness, swelling at the site of injection and tiredness, headache, muscle pain, chills, fever. Some of the rare symptoms like anaphylaxis, thrombosis with thrombocytopenia syndrome, Gillian Barre Syndrome, myocarditis and pericarditis. The aim of present study was Experimental survey on COVID-19vaccines by performing bleeding time and clotting time on vaccinated vs non vaccinated 300 volunteers (subjects).After observing the results we conclude that that the bleeding and clotting time values of vaccinated volunteers shows minimum range when compared to the non-vaccinated volunteers The two-tailed P value is less than 0.0001 by conventional criteria, this difference is considered to be extremely statistically significant. Finally the results showed that thrombosis is not a major adverse event for covid-19 vaccines.

**KEY WORDS:** COVAXIN, COVISHIELD, volunteers, vaccines, bleeding time, clotting time, covid-19.

## 1. INTRODUCTION:

A novel human corona virus, severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), was identified in China in December 2019<sup>1</sup> On January 30, 2020 the World Health Organization declared the outbreak of Public Health Emergency of International Concern due to increasing concerns over its fast spread. Perceived risk of acquiring disease has led many governments to institute a variety of control measures<sup>2</sup> COVID-19 affects different people in different cases. Most infected people will develop mild to moderate illness without hospitalization Most common symptoms of COVID-19 are fever, cough, fatigue, loss of taste or smell Other symptoms that are less common are sore throat, headache, diarrhea, muscle or joint pain, conjunctivitis, rashes on skin or discoloration of fingers or toes, nasal congestion, chills or dizziness Serious symptoms: like pneumonia acute respiratory distress syndrome cytokine storm multi organ failure and death. The disease spread rapidly, causing millions of death across the globe<sup>3</sup> Vaccines represents the key weapon in fighting against COVID-19 for saving lives and ending this pandemic. Vaccines help human bodies to develop immunity against COVID-19.<sup>4</sup>The vaccines that have been approved for emergency public use include COVAXIN, COVISHIELD, SPUTNIK-V are the vaccines that provides the immunity against COVID-19 by identifying it quickly and fight against it. [5] It's common to experience some mild to moderate side effects when receiving vaccinations this is because your immune system instructing your body to react in certain way. Some of the common side effects include pain, redness, swelling at the site of injection and tiredness, headache, muscle pain, chills, fever, some of the rare symptoms like anaphylaxis, thrombosis with thrombocytopenia syndrome, Guillain Barre syndrome, myocarditis and pericarditis, Development of thrombosis at uncommon sides includes cerebral venous sinus thrombosis (CSVT)/splanchnic venous thrombi ,mild to severe thrombocytopenia: <sup>6-9</sup> Based on the survey on covid-19 vaccines adverse events, there are so many adverse events like fever, cold, cough, body pains, nausea, headache, pneumonia, thrombosis and thrombocytopenia syndrome, anaphylaxis, from that we have selected thrombosis is a major adverse event that's why we were planned for experimental survey of bleeding time and clotting time on covid-19 vaccinated volunteers vs. non vaccinated volunteers. Whether this bleeding time and clotting time is affected with that adverse event?

## I. METHODOLOGY:

**Materials:** cotton balls, blood lancet (sterile), piece of filter paper and stopwatch,

**Chemicals:** 70% alcohol.

**Bleeding Time ProcedureDuke Method for Bleeding Time:**

**Procedure:**

1. Sterilize the fingertip and take a bold prick with a sterile lancet to have free flow of blood.
2. Record the time.
3. Pick up a piece of filter paper and fold it in half.
4. Exactly ½ a minute after puncturing the finger lightly touch the filter paper to the bloodcoming out from the puncture.
5. Repeat the above step every ½ minute until blood ceases to flow.
6. Record the time at which blood ceased to flow.
7. Determine the bleeding time from the recorded time data.

(Bleeding time is the time elapsed between the puncture of the finger and the cessation of bleeding.)

The above steps are repeated on 300 volunteers and that are divided into three groups as A BC 100 in group a, 100 in group b, 100 in group c <sup>14</sup>

**Normal Value:** 1-3 minutes



Figure 1 Bleeding time

**2.2. Clotting Time Capillary Glass Method Procedure:**

1. Sterilize the fingertip and take a bold prick to have free flow of blood.
  2. Suck blood in a capillary glass tube of 15 cm long.
  3. A small bit of glass tube is carefully broken off every fifteen seconds until a fine thread of clotted blood appears while the capillary tube is being broken.
  4. The period in between appearance of blood in finger and formation of clot is taken as clotting time
  5. The above steps are repeated on 300 volunteers and that are divided into three groups as A B C 100 in group a, 100 in group b, 100 in group c <sup>14</sup>
- Normal Value:** 3-4 Minutes.

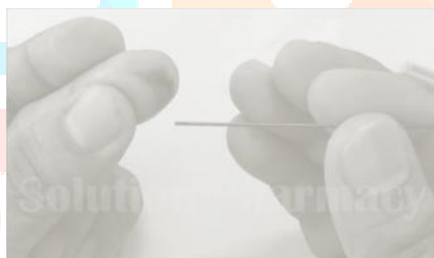


Figure 2 clotting time

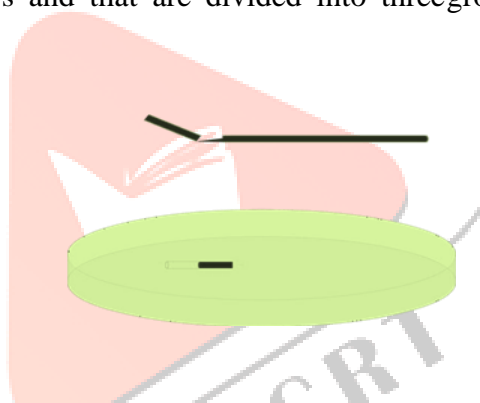


Figure 3 clotting of blood

**II. RESULTS AND DISCUSSION:** By using graph pad software we were find statistical data

**Review Data:**

**Table1 Bleeding time values of covishield Vs non vaccinated volunteers**

GROUP	NON VACCINATED BLEEDING TIME	COVISHIELD BLEEDING TIME
Mean	2.0450	0.8350
Standard deviation	0.5379	0.3669
Standard error mean	0.538	0.0367
N	100	100

From the above **table1** values P value and statistical significance:  
 The two-tailed P value is less than 0.0001 by conventional criteria; this difference is considered to be extremely statistically significant.

**Review data:**

**Table 2** Clotting time values of covishield Vs non vaccinated volunteer

GROUP	NON VACCINATED CLOTTING TIME	COVISHIELD CLOTTING TIME
Mean	2.2430	1.3820
Standard deviation	0.6910	0.4332
Standard error mean	0.0691	0.0433
N	100	100

From the above **table2** values P value and statistical significance:  
 The two-tailed P value is less than 0.0001 by conventional criteria; this difference is considered to be extremely statistically significant.

**Review data:**

**Table3** Bleeding time values of covaxin Vs non vaccinated volunteers

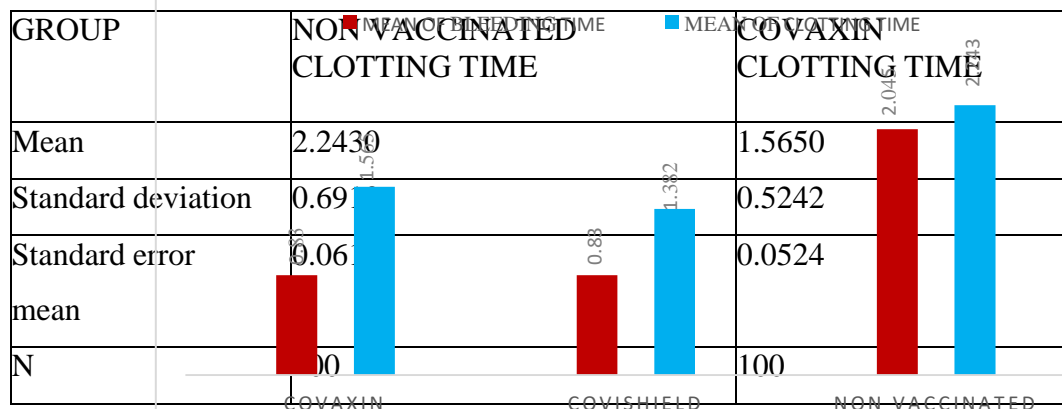
GROUP	NON VACCINATED BLEEDING TIME	COVAXIN BLEEDING TIME
Mean	2.0450	0.8300
Standard deviation	0.5379	0.4084
Standard error mean	0.0538	0.0408
N	100	100

From the above Table3 Bleeding time values of covaxinVs non vaccinated volunteers P value and statistical significance: The two-tailed P value is less than 0.0001 by conventional criteria; this difference is considered to be extremely statistically significant.

**Review data:**

**GRAPHICAL REPRESENTATION**

**Table4 clotting time values of covaxin Vs non vaccinated volunteers**



From the above table 4 values value and statistical significance: The two-tailed P value is less than 0.0001 by conventional criteria; this difference is considered to be extremely statistically significant.

**Table-5: Graphical Representation of Mean of Bleeding and Clotting Times on COVAXIN, Covishield and Non- Vaccinated Volunteers**

	MEAN OF BLEEDING TIME	MEAN OF CLOTTING TIME
COVAXIN	0.8300	1.5650
covishield	0.8350	1.3820
non vaccinated	2.0450	2.2430

**III. CONCLUSION:**

The above results and discussion conclude that the bleeding time and clotting time values of vaccinated volunteers shows minimum range when compared to non-vaccinated volunteers. The two-tailed P value is less than 0.0001 by conventional criteria, this difference is considered to be extremely statistically significant. Finally, the results showed that thrombosis is not a major adverse event for covid-19 vaccines.

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