



COMMON GASTRIC MANIFESTATIONS AFTER COVID-19 SINOPHARM VACCINATION

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ABSTRACT

The COVID-19 pandemic has underscored the significance of vaccination in protecting individuals from the virus. With multiple vaccines available, this study focuses on the Sinopharm vaccine, evaluating its gastric effects on recipients in both the short and long term. Our research, based on a comprehensive analysis of participant data, reveals that the Sinopharm COVID-19 vaccine is associated with gastric discomfort, acidity, and dyspepsia-like side effects, primarily in the long term, approximately one year post-vaccination. Notably, these side effects were observed not only in the general population but also in healthcare workers who received the vaccine. The findings of this study emphasize the importance of ongoing follow-up and regular evaluations to assess the long-term implications of the Sinopharm vaccine on stomach health and overall well-being. The development of an algorithm to monitor and address stomach health responses following vaccination is crucial for effective management and prevention strategies. This research contributes to the growing body of knowledge on vaccine-related side effects, highlighting the need for continued surveillance and evaluation of vaccine safety to inform evidence-based public health decisions.

KEYWORDS Common gastric manifestations after covid-19 vaccination, COVID-19 vaccine side effects, Gastric symptoms post COVID vaccination, GI symptoms after COVID-19 vaccine, COVID vaccine gastrointestinal reactions, Post-vaccination gastric issues, COVID-19 vaccine stomach problems, Digestive side effects of COVID vaccine

INTRODUCTION

COVID-19 first appeared in late 2019. The World Health Organization announced the outbreak of the coronavirus disease (COVID-19) as a global pandemic on March 11, 2020 [1]. Utilizing previous research on SARS and MERS, researchers swiftly pinpointed the virus's spike (S) protein as the main target for vaccines [2]. Typically, the process of vaccine development takes between 8 to 15 years. In contrast, COVID-19 vaccines were created in less than a year, establishing a new benchmark. [3] Numerous COVID-19 vaccine candidates have been produced by leading global biopharmaceutical firms. Sinopharm, also referred to as the BBIBP-CorV vaccine, is one of the two inactivated virus COVID-19 vaccines. Sinopharm received emergency use authorization (EUA) in July 2021. At first, Sinopharm was sanctioned for use in Asia, Africa, and the Middle East [4].

The progress in the development of the Sinopharm vaccine has revealed that two doses yield an efficacy of 79% [5]. As with any drug or vaccine that offers treatment and prevention, there is a possibility of experiencing adverse effects. A variety of vaccines have been developed, each presenting different side effects. It is crucial to consider that while some vaccines may lead to skin and psychiatric reactions, many have also been reported to cause gastric side effects related to the COVID-19 vaccine.

Likewise, in Pakistan, approximately 27% reported experiencing "gastrointestinal disturbance" following COVID vaccination [6]. In Jordan, around 19.1% indicated GI symptoms (such as nausea, vomiting, and diarrhea) after receiving inactivated COVID-19 vaccines [7]. The Pfizer–BioNTech trial noted diarrhea in the category exceeding 10% [8].

A variety of studies from Pakistan, Iran, and other areas consistently reveal that the most frequently observed side effects were fever, pain at the injection site, fatigue, headaches, and joint pain, with virtually no specific gastrointestinal symptoms like nausea, vomiting, or abdominal pain noted in large-scale population surveys. In a Karachi study involving 291 participants, "gastrointestinal disturbances" were reported, but without a detailed symptom breakdown. This was included with other general adverse effects related to the Sinopharm and Sinovac vaccines [9]

One case of Uncommon Autoimmune Gastric Condition: Pernicious Anemia A case study reported two patients who experienced pernicious anemia as a result of atrophic gastritis and diminished intrinsic factor following their second dose of the Sinopharm vaccine—indicating a potential rare autoimmune-related gastric issue.[10] Atrophic gastritis causes damage to the stomach lining, which results in decreased intrinsic factor and vitamin B₁₂ absorption (pernicious anemia) [11]

A peer-reviewed case report published in the International Journal of Hematology-Oncology and Stem Cell Research (2023) details two adults, aged 51 and 45, who developed megaloblastic (pernicious) anemia after receiving the second dose of the Sinopharm vaccine. Neither individual had any previous chronic conditions. The diagnostic evaluation revealed:

Low vitamin B₁₂ levels (below 150 pg/mL)

Endoscopic and histological evidence of atrophic gastritis, characterized by diminished gastric folds

Laboratory confirmation of low intrinsic factor levels

These results strongly suggest an autoimmune-mediated gastric response, manifesting as pernicious anemia.[12]

Additionally, a study conducted in Iran that compared different vaccine types (Sinopharm vs. Sputnik V vs. AstraZeneca; N = 656) found very low rates of gastrointestinal symptoms following the first dose of Sinopharm:

Nausea: 1.1%

Diarrhea: 1.1%

Abdominal pain: 1.7% [13]

Atrophic gastritis is characterized by persistent inflammation of the stomach lining, deterioration of gastric glands, and a decrease in the secretion of intrinsic factor, which results in vitamin B₁₂ deficiency and pernicious anemia. This mechanistic pathway corresponds closely with the symptoms seen in the two documented cases [14]

Although the Sinopharm vaccine is frequently utilized in some nations, there is limited research literature concerning its side effects. This study aims to analyze the gastric adverse effects experienced after receiving the Sinopharm vaccine among the general public.

Method

This is a longitudinal study. A total of 550 residents took part, with comprehensive follow-up carried out and all essential information gathered after securing informed consent from each participant. We gathered detailed data from individuals who participated in vaccination sessions, using a questionnaire that recorded demographic information, medical history, and medical background. This data was subsequently analyzed to evaluate the long-term effects of the Sinopharm vaccine, including pertinent details such as gender, occupation, economic status, and any gastric side effects encountered during the designated time period, along with related signs and symptoms.

Procedure

We collected the data from individuals who received the Sinopharm COVID-19 vaccine using sterile methods, ensuring that informed consent was acquired both before and after the first dose, as well as for the second dose.

Exclusion criteria

This study does not include participants with acute or chronic infections, those who are under 10 years of age, or those over 80 years old. In addition, individuals who display any gastric or neurological symptoms, experience ongoing migraines, or have a history of related systemic or psychological issues will also be excluded from the study.

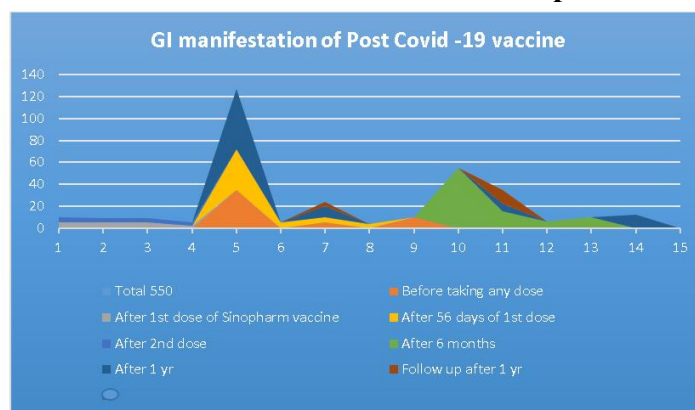
Inclusion criteria

The research encompassed participants over the age of 10 who had no active infections, along with those under 80 years old who had received two doses of the Sinopharm vaccine. Furthermore, the study also included vaccinated individuals experiencing occasional or mild heartburn or gastric issues.

Statistical analysis

This information originates from a specific area. Significant gastric effects have been noted. To improve the understanding of the results, standard descriptive statistics are visually represented, aiding in a clearer grasp of the data provided in this research

Graphical representation of Gastric adverse events after Sinopharm COVID-19 vaccination



Result

After the first dose was administered, a considerable number of people were vaccinated with the Sinopharm vaccine. Nevertheless, in accordance with our defined inclusion and exclusion criteria, we chose 550 residents from the general population. These individuals received their first and second doses as per the schedule. During this time, a total of 59 patients reported having gastric symptoms.

35 individuals prior to vaccination had already reported mild heartburn or gastric discomfort after receiving their first dose of the vaccine, along with mild anxiety and episodic headaches. 5 individuals have already reported gas production, while 10 individuals indicated experiencing dyspepsia.

A total of 15 individuals reported symptoms of dizziness, vertigo, and nausea after their first dose, all of which resolved within five minutes. Meanwhile, two additional individuals experienced vomiting that persisted for five minutes post-injection. This reaction is largely attributed to anxiety concerning the vaccination.

After 56 days of 1st dose of Sinopharm vaccine

After a duration of 56 days, upon returning for the second dose and after gathering all pertinent data, we discovered that 37 individuals experienced mild heartburn or gastric discomfort following their first dose of the vaccine, along with mild anxiety and episodic headaches, which are often not regarded seriously by those vaccinated. Additionally, 5 individuals reported experiencing gas production, while another 5 reported dyspepsia. Furthermore, 4 of the individuals noted changes in their voice.

After the second dose of Sinopharm vaccine

Following this, the participants were administered their second dose of the Sinopharm vaccine. 13 individuals noted feelings of dizziness, vertigo, and nausea after the first dose, which resolved in 5 minutes. Additionally, three others suffered from vomiting that persisted for 5 minutes after the second dose. This response is largely attributed to anxiety concerning the vaccination.

6 months after vaccination

A total of 55 individuals reported symptoms such as dyspepsia, nighttime cough, heartburn, and headaches, some of which were present prior to vaccination. In contrast, 15 patients experienced gastric discomfort and disturbances in their circadian rhythm that were absent before receiving the vaccine.

Additionally, 6 patients became sensitive to certain dietary changes, while 10 patients noted sensitivity to their unfiltered water, which they had not experienced prior to vaccination. This situation raises questions and concerns about whether these symptoms are side effects of the vaccine or linked to other factors

1 year after vaccination

A number of individuals reported experiencing dyspepsia and mild headaches occasionally, which they had prior to getting vaccinated. 55 individuals faced gastric discomfort, while 3 suffered from severe gastric acidity that prevented them from consuming spicy foods. Additionally, 10 patients noted an increase in gas production that was not present before vaccination, and 7 patients indicated that their gastric motility became sensitive when dining out, a condition they had not encountered previously. Conversely, 12 patients who initially experienced gastric discomfort found that their symptoms improved after receiving the vaccination.

Follow up these individuals

After performing a comprehensive follow-up with the 55 patients who reported gastric discomfort, we found that 44 patients experienced some relief while they were on their proton pump inhibitors. However, 9 others faced severe gastric episodes that required them to take additional medications. Additionally, 13 individuals reported disturbances in their circadian rhythm due to gastric issues, and 4 experienced significant gas production and dyspepsia.

Discussion

It has been observed that this pandemic poses a significant risk to all individuals and impacts our health and overall well-being in various ways. Therefore, it is crucial for people to select their preferred vaccine to protect themselves. Given the availability of several vaccines, we have chosen to investigate the Sinopharm vaccine to evaluate its gastric effects on recipients in both the short and long term. In conclusion, vaccination is typically viewed as a safe practice. Nevertheless, some research suggests that a small fraction of individuals may experience gastric effects, particularly linked to the Sinopharm vaccine with appropriate evidence. Our primary focus, however, is exclusively on the Sinopharm vaccine, and to this point, whether any gastric issues have been reported in relation to it.

Limitations

This research has several limitations, notably the limited data set comprising individuals who received both doses of the Sinopharm vaccine within a restricted timeframe. Our results are specific to Karachi, Pakistan, and it is conceivable that other areas may reveal important discussions about more severe gastric effects. Furthermore, we did not consider other vaccines like Pfizer, Moderna, AstraZeneca, or Sinovac, which have been highlighted in numerous studies for their gastric effects.

Conclusion

To summarize, vaccination is largely perceived as a safe practice. It is vital to gather information on the gastric effects associated with vaccines to enhance prevention strategies, and there is a demand for an algorithm to oversee and address stomach health responses following vaccination for effective management. Our research, based on a comprehensive analysis of the participants from whom we collected data, has indicated that the Sinopharm COVID-19 vaccine does result in gastric discomfort, acidity, and dyspepsia-like side effects, not in the short term but rather in the long term, specifically one year after vaccination. Investigations into gastric side effects following COVID-19 vaccination remain limited, making it challenging to draw definitive conclusions about the vaccine's benefits or drawbacks. According to our findings thus far, the Sinopharm COVID-19 vaccine has been generally safe for gastric issues in the short term only, as we observe gastric health disturbances post-vaccination, which are not only experienced by individuals but also by healthcare workers who received this vaccination. To gain a better understanding of its long-term effects, it is essential to maintain follow-up with all clients and perform regular evaluations to assess its future implications on stomach health and other health-related matters.

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