

Project Title

Is preparative fasting of 4 hours necessary prior to IV contrast-enhanced CT examinations?

Project Lead and Members

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Organisation(s) Involved

Changi General Hospital

Healthcare Family Group Involved in this Project

Allied Health

Applicable Specialty or Discipline

Diagnostic Radiography

Aims

- To eliminate the requirement for preparative fasting.
- To reduce unnecessary patient discomfort and potential delays due to fasting prior to contrast enhanced CT.

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Conclusion

See poster appended / below

Additional Information

Singapore Healthcare Management (SHM) Conference 2021 – Merit Award (Patient Experience Category)

Project Category

Care & Process Redesign, Value Based Care, Safe Care

Keywords

Patient Experience, Preparative Fasting, Contrast-enhanced CT Scan, Computed Tomography

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Introduction

In Changi General Hospital Radiography Department, fasting of 4 hours is required before any contrast-enhanced Computed Tomography (CT) scan. However, according to the ESUR Guidelines published in 2018 (European Society of Urogenital Radiology), fasting is non-essential prior to intravenous (IV) contrast administrations.

Objective

To determine the usefulness of preparative fasting for patients undergoing contrast-enhanced CT scans.

Aim

- To eliminate the requirement for preparative fasting.
- To reduce unnecessary patient discomfort and potential delays due to fasting prior to contrast-enhanced CT.

Materials and Methods

A total of 2665 patients were prospectively evaluated over Jan-Dec 2019.

Control Group	Study Group
2126 patients	539 patients

Table 1 demonstrates the number of patients in control and study groups respectively

Control group:

- Patients who have been fasted for 4 hours prior to contrast-enhanced CT scan.

Study group:

- Patients who failed to fast for 4 hours prior to contrast-enhanced CT scan and accepted the potential adverse risks involved for the scan.

Adverse effects observed during and after administration of contrast media were evaluated between both groups.

Results

Out of the total of 2665 patients who underwent the procedures, 20 patients vomited. The incidence of vomiting in study group was 1.1 whilst the control group was 0.6. As the 95 % confidence interval of the two groups did not cross +/-1% region set (95% CI= -0.52 to -0.46), hence, the likelihood of patients vomiting between the 2 groups is equivalent.

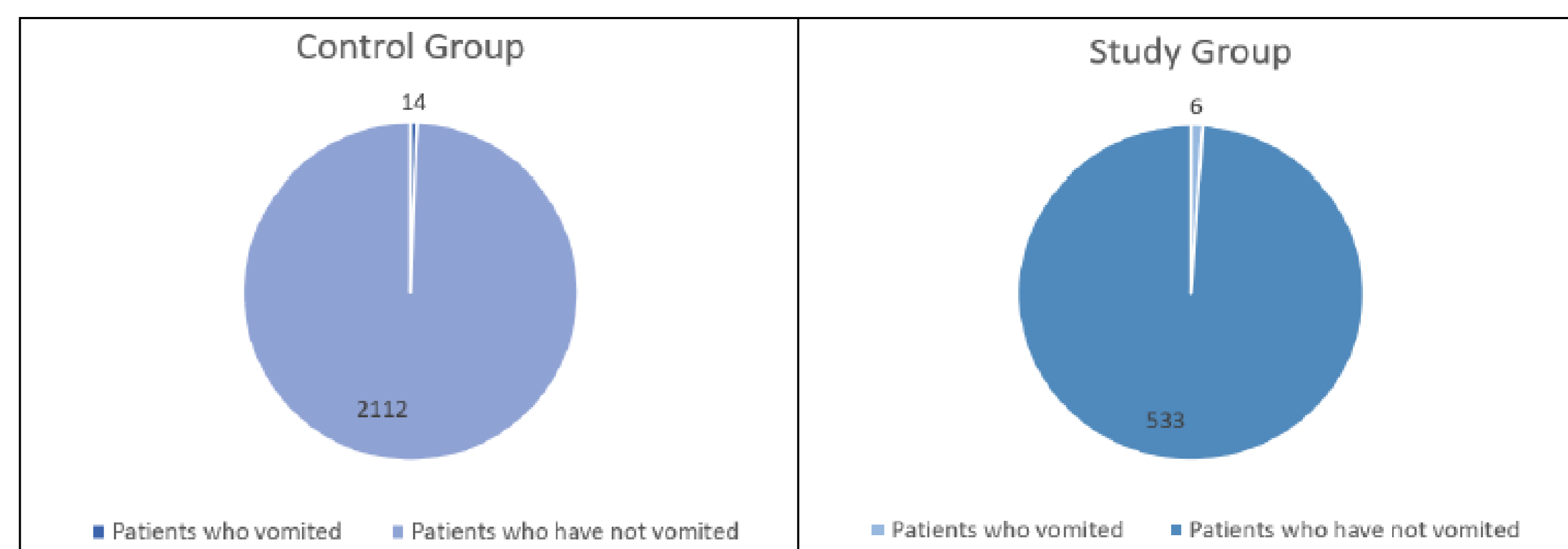


Figure 1 shows the number of patients who vomited in control and study groups

Discussion

Based on the past practice, preparative fasting for contrast-enhanced CT is required in order to eliminate the chance of aspiration pneumonia and pulmonary aspiration (Bush & Swanson, 1991). This is mainly caused by the use of ionic and high-osmolarity contrast medium in contrast-enhanced CT scan. However, with the introduction of newer contrast medium, which are mostly nonionic and low in osmolarity, the need for preparative fasting can be considered negligible.

This suggestion has been further supported by Lee, Ok, Elsayed, Kim & Han (2012). Their study has shown that the frequency of vomiting has decreased considerably.

Conclusion

In this investigation of patients undergoing contrast-enhanced CT examinations, a substantially small number of vomiting episodes were observed irrespective of preparative fasting. These results give validation that fasting is not warranted prior to contrast-enhanced CT, therefore allowing a reduction in patient discomfort and inconvenience.

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References

- Bush, W. H. & Swanson, D. P. (1991). Acute reactions to intravascular contrast media: Types, risk factors, recognition, and specific treatment. *AJR Am J Roentgenol*, 157(6), 1153-1161.
- European Society of Urogenital Radiology. (2018). ESUR Guidelines on Contrast Agents. Retrieved from http://www.esur.org/fileadmin/content/2019/ESUR_Guidelines_10.0_Final_Version.pdf.
- Lee, B. Y., Ok, J. J., Elsayed, A. A. A., Kim, Y. & Han, D. H. (2012). Preparative Fasting for Contrast-enhanced CT: Reconsideration. *Radiology*, 263(2), 444-450.