

Original Article**Feasibility of Non-Fasting Before Coronary Angiography and Angioplasty: A Safety and Outcomes Study****Aditya Mahaseth*, Aayush Lamichhane, Anubhav Sharma, Sahadev Dhungana, Arun Sayami**

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Article Received: 5th August, 2025; Accepted: 25th November, 2025; Published: 31st December, 2025**DOI:** <https://doi.org/10.3126/jonmc.v14i2.87601>**Abstract****Background**

Traditionally, preprocedural fasting before coronary angiography and angioplasty is recommended to reduce the risk of aspiration during sedation. However, prolonged fasting causes patient inconvenience, hypoglycemia, and procedural delays. Recent evidence suggests that fasting may not always be necessary.

Materials and Methods

This was a prospective, observational study conducted at Kathmandu Medical College and Teaching Hospital. Patients were selected using simple random sampling and allocated into fasting and non-fasting groups. 400 adult patients scheduled for elective coronary angiography or PCI were randomly assigned to a fasting group (nil per os \geq 6 hours, n = 200) or a non-fasting group (light meal \geq 4 hours prior, clear liquids allowed up to 2 hours prior, n = 200). The primary outcome was aspiration-related complications (cough, desaturation, or radiographic changes). Secondary outcomes included procedural delay, hypoglycemia, nausea, and patient satisfaction (Likert scale). Logistic regression adjusted for age, sex, diabetes, hypertension, and procedure type.

Results

Aspiration-related events were rare and occurred equally in both groups (0.5% each; OR 1.0, 95% CI 0.06–16.1; p = 1.0). Non-fasting patients had significantly fewer procedural delays (1.5% vs. 7.5%; OR 0.19, 95% CI 0.05–0.64; p = 0.002) and hypoglycemia events (0.5% vs. 5.0%; OR 0.09, 95% CI 0.01–0.73; p = 0.005). Patient satisfaction was higher in the non-fasting group (4.7 ± 0.5 vs. 3.5 ± 0.8 ; mean difference 1.2, 95% CI 0.9–1.5; p < 0.001).

Conclusion

The study found no significant difference in the primary outcome of aspiration-related complications between the fasting and non-fasting groups.

Keywords: Coronary angiography, Percutaneous coronary intervention, Patient satisfaction

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Introduction

Coronary angiography and percutaneous coronary intervention (PCI) are fundamental procedures for diagnosing and treating coronary artery disease [1]. Traditionally, patients scheduled for these procedures are instructed to fast pre-procedurally to reduce aspiration risk during sedation [2]. This long-standing practice is based on reducing the risk of pulmonary aspiration during sedation, which is a rare but severe complication.

However, prolonged pre-procedural fasting is associated with several drawbacks, including patient discomfort, anxiety, an increased risk of hypoglycemia, and logistical procedural delays [3]. Furthermore, the low incidence of aspiration in modern catheterization labs, where conscious sedation is commonly used, suggests that traditional fasting protocols may be unnecessarily restrictive [4, 5]. Emerging evidence supports more liberal intake prior to elective procedures, showing benefits such as reduced anxiety, improved comfort, and lower incidence of hypoglycemia [6, 7]. Contemporary guidelines, such as those from Enhanced Recovery After Surgery (ERAS) and anesthesia societies, are increasingly advocating for more liberal and individualized approaches to fluid and food intake before elective procedures [8, 9].

Given the existing clinical challenges and the shift toward liberalized fasting guidelines in other surgical fields, data specific to coronary procedures remains limited. Therefore, this study aimed to assess the safety and feasibility of implementing a non-fasting protocol in patients undergoing elective coronary angiography and PCI, evaluating outcomes such as aspiration-related complications, procedural delays, hypoglycemia rates, and patient satisfaction.

Materials and Methods

This was a prospective observational study was conducted at Department of Cardiology, Kathmandu Medical College and Teaching Hospital, Kathmandu, Nepal, Hospital from March 12, 2024, to September 11, 2024. A total of 400 adult patients (≥ 18 years) scheduled for elective coronary angiography or PCI were enrolled after taking informed consent. Ethical approval to carry out the study was obtained from the Institutional Review Committee of Kathmandu Medical College Teaching Hospital. Emergency procedures, severe gastroesophageal reflux disease, impaired consciousness, or anticipated difficult airway were excluded from the study. A total of 400 patients were included and randomized

based on simple random sampling. Because aspiration events are rare in elective coronary angiography/PCI under conscious sedation, we used a precision-based approach for the primary endpoint. Assuming an aspiration risk of $\sim 1\%$ in each group, a sample of 190 patients per arm provides a two-sided 95% CI half-width $\leq 2.0\%$ for the risk difference between non-fasting and fasting. Allowing $\sim 5\%$ attrition, we targeted 200 per arm (total $n=400$). For key secondary outcomes, this sample provides $\approx 80\%$ power ($\alpha=0.05$) to detect absolute differences of 6% for procedural delays (e.g., 7.5% vs 1.5%) and 4.5% for hypoglycemia (e.g., 5.0% vs 0.5%), and is ample to detect clinically meaningful differences ($\geq 0.3-0.5$ points) in satisfaction scores assuming $SD \approx 0.8$.

The sample size was estimated to detect a 5% difference in aspiration-related events between groups, assuming a baseline rate of 5%, with 80% power and a two-sided alpha of 0.05. Fasting group ($n = 200$): Nil per os ≥ 6 hours before procedure. Non-fasting group ($n = 200$): Light meal (e.g., toast and tea) ≥ 4 hours before; clear liquids permitted up to 2 hours before. Primary outcome: Aspiration-related complications (cough, desaturation, or radiographic changes). Secondary outcomes: Procedural delay, hypoglycemia (blood sugar < 70 mg/dL), nausea/vomiting, and patient satisfaction (5-point Likert scale).

5 POINT SCALE

Satisfaction	Likelihood	Level of concern
1. Very dissatisfied	1. Very unlikely	1. Very unconcerned
2. Dissatisfied	2. Unlikely	2. Unconcerned
3. Neither dissatisfied or satisfied	3. Neutral	3. Neutral
4. Satisfied	4. Likely	4. Concerned
5. Very satisfied	5. Very likely	5. Very concerned

Continuous variables are presented as mean \pm SD and compared using independent t-tests; categorical variables are compared using chi-square tests. Multivariable logistic regression was performed for binary outcomes to adjust for prespecified confounders: age, sex, diabetes mellitus, hypertension and procedure type (diagnostic coronary angiography vs. PCI). For continuous outcomes such as satisfaction score, linear regression with the same covariates was used. Results are reported as odds ratios (OR) or mean differences with 95% confidence intervals (CIs). A two-sided $p < 0.05$ was considered statistically significant.



Results

400 patients were enrolled in the trial, of which 200 were fasting and 200 were non-fasting. From the observation of Table 1, the baseline demographic and clinical characteristics were comparable between groups. The age was mean 58.7 ± 8.2 years for fasting and mean 59.1 ± 7.9 years for non-fasting and no statistically significant difference ($p = 0.72$). Male distribution also was similar between groups (70% fasting vs. 72.5% non-fasting; $p = 0.65$). Diabetes incidence (40% vs. 42.5%, $p = 0.71$) and hypertension incidence (60% vs. 57.5%, $p = 0.68$) also were not significantly different and show an appropriately matched cohort based on comorbidities.

Table 1: Baseline Characteristics

Characteristic	Fasting (n = 200)	Non-Fasting (n = 200)	p-value
Age (mean \pm SD)	58.7 ± 8.2	59.1 ± 7.9	0.72
Male, n (%)	140 (70%)	145 (72.5%)	0.65
Diabetes, n (%)	80 (40%)	85 (42.5%)	0.71
Hypertension, n (%)	120 (60%)	115 (57.5%)	0.68

The frequency of aspiration-related events was identical in both fasting and non-fasting cohorts, with one event (0.5%) reported in each cohort. The p-value of 1.00 indicates a lack of a statistically significant difference in this important safety end point, implying that fasting status did not influence the risk for aspiration.

Table 2: Primary Outcome

Outcome	Fasting (%)	Non-Fasting (%)	p-value
Aspiration related complications, n(%)	1(0.5%)	1(0.5%)	1.00

Significant differences were observed for the secondary outcomes. Delay in procedures was much more common in the fasting group (7.5%) compared to the non-fasting group (1.5%), with a p-value of 0.002. Hypoglycemia was also significantly higher in the fasting group (5.0%) compared to the non-fasting group (0.5%), with a p-value of 0.005. The incidence of nausea was not significantly different between the two groups (6.0% vs. 4.0%, $p = 0.36$).

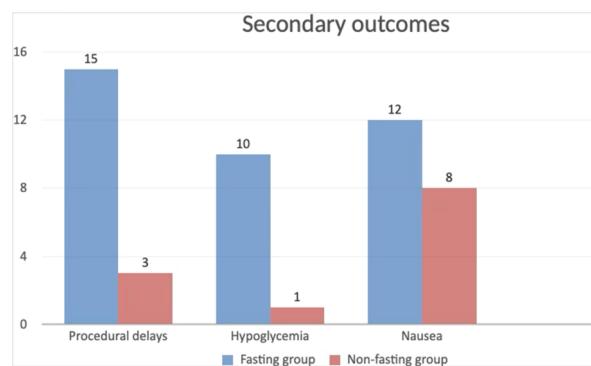


Figure 1: Secondary outcomes

(Bar chart comparing the secondary outcomes between the two groups)

Patient satisfaction, rated on a 5-point scale (based on Likert scale), was also significantly higher in the non-fasting group. The mean satisfaction score of the non-fasting group was 4.7 ± 0.5 , while that of the fasting group was 3.5 ± 0.8 ($p < 0.001$) (Table 3). It reflects that preprocedural fasting negatively impacted patient comfort and overall procedural experience.

Table 3: Patient Satisfaction Scores

Group	Mean Score (1–5)	p-value
Fasting	3.5 ± 0.8	<0.001
Non-Fasting	4.7 ± 0.5	

After adjustment for age, sex, diabetes, hypertension, and procedure type (diagnostic coronary angiography vs. PCI), the associations observed in unadjusted analyses remained consistent (Table 4).

Non-fasting patients had significantly lower odds of procedural delays (adjusted OR 0.21, 95% CI 0.06–0.72; $p = 0.013$) and hypoglycemia (adjusted OR 0.11, 95% CI 0.01–0.88; $p = 0.037$). There was no independent difference in nausea between groups (adjusted OR 0.65, 95% CI 0.27–1.55; $p = 0.33$). Non-fasting status was strongly associated with higher satisfaction, with patients more than five times as likely to report high satisfaction (≥ 4 Likert) compared to fasting patients (adjusted OR 5.42, 95% CI 3.12–9.41; $p < 0.001$).

These findings confirm that the benefits of non-fasting fewer delays, reduced hypoglycemia, and improved satisfaction remain robust even after accounting for baseline clinical covariates.



Table 4.

Outcome	Adjusted OR (95% CI)	p value
Procedural delays (Fasting vs. Non-fasting)	0.21 (0.06–0.72)	0.013
Hypoglycemia (Fasting vs. Non-fasting)	0.11 (0.01–0.88)	0.037
Nausea (Fasting vs. Non-fasting)	0.65 (0.27–1.55)	0.33
High satisfaction (=4 Likert) (Fasting vs. Non-fasting)	5.42 (3.12–9.41)	<0.001

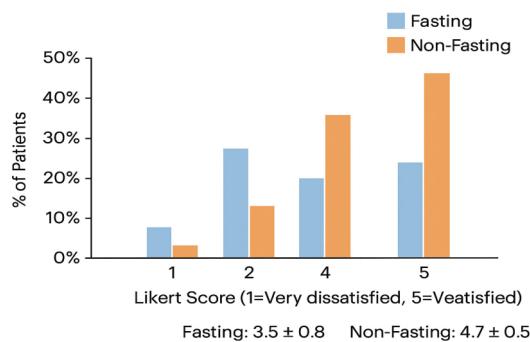


Figure 2: Satisfaction Score Distribution (Based on Likert Scale)

(Bar chart comparing % of patients rating satisfaction as 4 or 5 in each group)

Discussion

This study demonstrates that permitting non-fasting before elective coronary angiography and PCI is safe and is associated with meaningful improvements in both patient-centered and procedural outcomes. The incidence of aspiration-related events was extremely low and comparable between fasting and non-fasting groups, reinforcing existing evidence from prior observational studies and meta-analyses that question the necessity of prolonged fasting for procedures performed under conscious sedation [10]. These findings challenge long-standing but largely extrapolated fasting practices derived from general anesthesia protocols rather than catheter-based cardiovascular interventions.

After comprehensive multivariable adjustment, non-fasting status remained independently associated with reduced procedural delays and a significantly lower incidence of hypoglycemia, without an increase in nausea or vomiting. Procedural delays in cardiac catheterization laboratories often have downstream consequences, including workflow inefficiencies, patient dissatisfaction, and increased healthcare costs. Our findings suggest that rigid fasting requirements may contribute unnecessarily to such delays, particularly in patients scheduled later in the day or those with diabetes who are more vulnerable to fasting-related metabolic derangements. The observed reduction in hypoglycemia is clinically

important, as periprocedural hypoglycemia has been associated with adverse cardiovascular outcomes, autonomic instability, and patient discomfort.

Notably, patients in the non-fasting group reported significantly higher satisfaction scores, highlighting the importance of patient comfort and experience as integral components of quality cardiovascular care. Patient satisfaction is increasingly recognized as a key quality metric, influencing adherence, trust in healthcare systems, and overall outcomes [6,13,14]. Allowing oral intake before procedures may reduce anxiety, hunger, fatigue, and dehydration, thereby improving the overall procedural experience without compromising safety.

These results are consistent with broader perioperative literature demonstrating that liberal preprocedural intake, including carbohydrate-containing fluids, attenuates insulin resistance, reduces metabolic stress, and enhances postoperative recovery [11,12]. Although coronary angiography and PCI differ from major surgical procedures, the shared principles of sedation, stress response, and patient physiology support the applicability of these findings to the cardiac catheterization setting. Importantly, our study extends this evidence by demonstrating similar benefits in a real-world cardiovascular population with diverse comorbidities.

Our findings support a paradigm shift toward procedure-specific fasting protocols, particularly for interventions performed under conscious sedation. Unlike procedures requiring general anesthesia or airway manipulation, coronary angiography and PCI typically involve minimal sedation and preserved protective airway reflexes, reducing the theoretical risk of aspiration. The persistence of our findings after adjustment for common comorbidities, including diabetes, renal dysfunction, and heart failure, further strengthens the generalizability of a non-fasting approach in routine clinical practice.

Current anesthesia society guidelines increasingly endorse the intake of clear fluids up to two hours before elective procedures, reflecting an evolving understanding of aspiration risk and gastric emptying physiology [9,12]. However, adoption of these recommendations in cardiology practice has been inconsistent. Our data provide procedure-specific evidence to support updating institutional protocols in cardiac catheterization laboratories.

In summary, non-fasting before elective coronary angiography and PCI appears safe and confers advantages in procedural efficiency, metabolic

stability, and patient satisfaction. These findings support reconsideration of traditional fasting policies and favor the implementation of patient-centered, evidence-based fasting protocols tailored to the procedural and sedation profile of contemporary cardiovascular interventions. This was a single-center study with a relatively short 24-hour follow-up, limiting generalizability and detection of late complications. The definition of "light meal" was not standardized beyond general examples, introducing variability. Subgroup analysis by BMI and sedation dosage was not performed. Importantly, because fasting status was obvious to both patients and clinicians, blinding was not feasible, introducing possible observer and performance bias. As this was an observational study rather than a strictly controlled randomized trial, potential selection bias cannot be entirely excluded, although simple random sampling was applied.

Conclusion

The study found no significant difference in the primary outcome of aspiration-related complications between the fasting and non-fasting groups (0.5% in both). However, the non-fasting group demonstrated several benefits, including significantly fewer procedural delays, reduced hypoglycemia, and substantially higher patient satisfaction. These advantages of non-fasting status remained statistically robust even after adjusting for baseline clinical factors.

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Conflict of interest: None declared.

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