Table 3: Evidence on not fasting before cardiac catheterisation.

Author, year, country, quality	Type of literature	Setting and sample	Focus and aims of each study	Data related to not fasting before cardiac catheterisation
Abdelaziz, 2018,[25] United Kingdom, quality: poor	Registered protocol for a randomised control trial. Clinical trials registry.	Teaching hospital. Anticipated 350 participants. All patients 18 years and over undergoing elective coronary angiography or angioplasty. All elective patients at this hospital were given the opportunity to participate.	Aim is to show there is no difference in potential complications between fasting and non-fasting groups. The author hypotheses that there will be a lesser incidence of hypoglycaemia and hypotension and greater patient satisfaction, improved catheter lab efficiency and associated financial benefits in the non-fasting group. Outcomes measured will include the incidence of nausea, vomiting, abdominal pain, emergency intubation and aspiration within 8 hours. Secondary outcome measures will include hypoglycaemia, hypotension, patient satisfaction, and chest infection.	Current fasting practices before coronary angiography and angioplasty are not based on studies. Previously, fasting practices were based on guidelines for general anaesthesia. Emergency procedures carry the most risk and are done without fasting patients. There is no reported complication rate for emergency procedures, where patients are not fasted.
Aguilar-Nascimento and Fergi, 2015,[26] Brazil, quality: poor	A commentary of Hamid et al.[9] Published in a peer-reviewed journal.	N/A	Brief context provided and the findings of Hamid et al[9] are discussed, with some integration of references from other sources. Endorses the findings of Hamid et al.[9] A strong recommendation is made for further research in this area.	Agreement that data suggests fasting is not necessary for angioplasty. Preoperative fasting increases insulin resistance and gluconeogenesis. Agreement that prolonged fasting causes dehydration and increased risk of acute renal failure. Highlights the necessity for a revision of fasting protocols for angioplasty.
Bacus et al, 2020,[14] New Zealand, quality: fair	Prospective, observational study. Single-centre.	Public hospital. 1,030 consecutive patients over six months undergoing elective coronary angiography or angioplasty. 2017–2018.	Aimed to assess current practice and quantify duration of fasting and the rate of fasting related complications.	There was a wide variation in fasting practice within the single institution. The fasting duration was much longer than anticipated. Patients fasted up to 24 hours (mean=11.6 hours), and only 11% received pre-hydration. The rate of vomiting was low, and no aspiration events occurred. The author claims the data supports the need for further research in this area. Measured outcomes: hunger (47.1%), headache (11.6%), hypotension (6%), hypertension (4.1%) nausea (3.9%), arrhythmia (1.3%), hyperglycaemia (0.8%), vomiting (0.8%), vasovagal syncope (0.8%), hypoglycaemia (0.7%), aspiration (0%).

Table 3: Evidence on not fasting before cardiac catheterisation (continued).

Author, year, country, quality	Type of literature	Setting and sample	Focus and aims of each study	Data related to not fasting before cardiac catheterisation
Hamid et al., 2014,[9] United Kingdom, quality: fair	Retrospective observational analysis of a data registry.	Two district general hospitals. 1,916 consecutive patients undergoing angioplasty. 2010–2013.	To demonstrate that percutaneous cardiac catheterisation does not require prior fasting. No patients were required to fast before their procedure.	The incidence of intraprocedural endotracheal intubation, aspiration pneumonia and on table death was zero. Authors claim that their study shows that patients do not need to be fasted before coronary angioplasty procedures. Patients undergoing urgent angioplasty following acute myocardial infarction are not fasted and the need for emergency intubation or cardiac surgery for such patients is rare. Reducing fasting times could arguably reduce acute kidney injury in this patient cohort, avoiding associated extended hospital stays and economic and health implications.
Hamid et al., 2014,[16] United Kingdom, quality: poor	An author's reply to the commentary reported by Wijeyeratne, Wendler.[27] Commentary/authors reply. Internally peer-reviewed.	N/A	To raise awareness regarding not fasting before angiography and angioplasty.	There is a difference in fasting protocol between institutions, for the same procedure. Concerns for increased risk of pulmonary aspiration in non-fasted patients are most likely unfounded. Patients undergoing emergency angioplasty procedures do not fast and there is no reported excess of peri-procedural pulmonary aspiration on the British Cardiovascular Intervention Society national registry. When patients are not fasted, radial access for procedures may be easier and less sedation induced hypotension may occur.
Li et al, 2017,[21] Singapore, quality: poor	Article abstract from conference proceedings. Randomised control trial.	General hospital. 515 patients. Randomisation to overnight fasting or limited-fasting group at referral for outpatient angiography.	To show that routine cardiac catheterization is safe in non-fasted patients.	More patients in the limited fasting group required sedation than the overnight fasting group due to anxiety or radial spasm. More patients required fluid bolus for hypotension in the overnight fasted group (4% vs 9.4% p=0.02). Two patients in the overnight fasting group reported nausea post procedure unrelated to sedation use. No incidence of vomiting or SaO2 <92% in either group.

Table 3: Evidence on not fasting before cardiac catheterisation (continued).

Author, year, country, quality	Type of literature	Setting and sample	Focus and aims of each study	Data related to not fasting before cardiac catheterisation
Rolley et al., 2011,[28] Australia/New Zealand, quality: poor	Nursing clinical practice guidelines. Guidelines created following a literature review, a consensus development workshop and a modified Delphi technique.	N/A	To present a set of nursing clinical practice guidelines for individuals undergoing angioplasty together with a summary of the evidence to support the recommendations.	Based on available evidence, it is not justifiable to routinely fast patients undergoing angioplasty. Fasting should be on a case-by-case basis and based on clinical judgement. The grade of this evidence is "N," meaning no consensus was achieved regarding the recommendation. Fasting is widely implemented due to theoretical considerations and potential risk.
Mishra et al., 2019,[15] United States of America, quality: poor	Article abstract from conference proceedings. A single centre, prospective, randomized study. Preliminary analysis	253 inpatients. Up to December 2018.	The fasting group and non-fasting group had similar rates of contrast induced nephropathy (3% vs 4%), peri-procedural. hypotension (3% vs 0.8%), aspiration pneumonitis (0 vs 0.8%), nausea/vomiting (4% vs 8%), hyperglycaemia (7% vs 2%), hypoglycaemia (0.8% vs 2%) and 30-day mortality. For all outcomes p=not significant. The non-fasting group had higher patient satisfaction scores (4.3±0.08 vs 4.1±0.09, p=0.039). The non-fasting group had lower cost of index hospitalisation (9,693 USD±878 vs 13837 USD±1,470, p=0.016)	Not fasting is associated with improved patient satisfaction and reduced cost of care when compared to traditional fasting practices. The incidence of adverse outcomes were similar between fasting and non-fasting groups.
Wijeyeratne et al, 2014,[27] United Kingdom, quality: poor	A commentary on Hamid et al.[9] Commentary/letter to the editor. Internally peer-reviewed.	N/A	The aim of this commentary is unclear.	There is no clear evidence to support the current practice of fasting before invasive cardiac procedures. The paper by Hamid et al[9] serves to raise awareness. Wider applicability of research by Hamid et al[9] may be limited due to study methods. Fasting before cardiac procedures appears to have come from fasting guidelines for general anaesthesia. The theoretical risk is that sedation may depress cough and swallow reflexes. There are no consensus guidelines in this area and the evidence base is poor. More robust evidence would, therefore, be crucial to establish best practice and promote consistency.