

Developing 'SipTilSend' Policies for Hip Fracture Surgery

Scottish Hip Fracture Audit Steering Group
Practice Statement

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Summary

This document represents a number of Scottish Health Boards who are represented by the SHFA steering group and have chosen to implement SipTilSend as a means of shortening pre-operative fluid deprivation in patients with hip fracture. The document sets out a rationale for doing so and makes recommendations for other hospitals considering implementing SipTilSend. The SHFA steering group is supportive of units wishing to implement SipTilSend, however is not currently in a position to make recommendations about changing practice with regard to pre-operative fasting.

- Current international guidelines for preoperative fluid fasting is 2 hours, and SHFA Standard 5 states that patients should be offered clear fluids until 2 hours before surgery
- Hip fracture patients often fasted for fluids for many hours, and preoperative oral fluid deprivation is harmful and unpleasant
- Reducing prolonged fluid deprivation in unplanned surgery has traditionally been challenging
- 'SipTilSend' reduces pre-operative fluid deprivation times by allowing patients to sip water or other clear fluids until they are sent to theatre
- 'SipTilSend' is unlikely to lead to a material difference in aspiration risk
- 'SipTilSend' is likely to improve patient comfort and satisfaction, reduce thirst, malaise and dehydration and may reduce the incidence of perioperative delirium
- Aspiration risk should continue to be individually assessed and the anaesthetic should be planned taking this into account

1.1 Why is this important to tackle?

Fasting for surgery in the UK is informed by the guidance published in 2011 from the European Society of Anaesthesiology 'Perioperative Fasting in Adults and Children'. This states that adult patients should be allowed to drink clear fluids and tea/coffee with a small volume of milk for up to 2 hours prior to surgery, and should omit solids for 6 hours before surgery¹.

In clinical practice, achieving appropriately short fasting times has proved to be difficult.

Emergency surgery theatre times are difficult to predict and short notice changes to are common. This means allowing patients to continue drinking whilst maintaining flexibility in theatre scheduling is extremely difficult and risks cancelling patients or delays to lists. This inevitably results in prolonged preoperative fluid deprivation for patients waiting to go for their surgery.

Prolonged oral fluid deprivation is unpleasant for patients, especially during hot weather. It is also associated with harm: patient discomfort, malaise, dissatisfaction, nausea and vomiting, dehydration and possibly even post-operative delirium. There is a wealth of evidence showing poor attainment of existing fasting standards, yet we are unable to identify a successful strategy to address excessive fluid fasting². Whilst proactive trauma list planning should improve fasting times to a degree, in practice this effect is small.

SHFA Standard 5 states that clear fluids should be offered to patients up to 2 hours prior to surgery. The SHFA audited fasting for fluids from 2012-2016 and despite a focus on proactive list planning, fasting times only showed modest improvement over this period. In 2016, when the SHFA ceased auditing oral fluid deprivation, 50% of hip fracture patients still fasted for fluids for greater than 6 hours and 22% fasted for greater than 10 hours³. It is clear we are not meeting our own standard despite best efforts to do so, and this appears to be a common problem world-wide.

1.2 Gastric volume and aspiration risk

Our understanding of the physiology of gastric emptying and the harms of prolonged fasting is somewhat different since the ESA fasting guideline was published in 2011. Recently the 2-hour fasting limit has been questioned⁴⁻⁶ with authors citing physiological data supporting rapid clearance of clear fluids from the stomach, the multifactorial nature of aspiration of gastric contents and the rarity of aspiration events that lead to morbidity or death. Alternative fasting policies are now being adopted in increasing numbers across the UK which shorten or remove the limit for fasting for fluids. The International Committee for Advancement of Procedural Sedation published a consensus statement on fasting which allows unrestricted fluids in low-risk patients undergoing procedural sedation⁷. One unit that published their experience of >10,000 patients found that unrestricted fluids up until sending in elective day surgery reduced nausea and improved patient satisfaction and recorded no episodes of pulmonary aspiration⁸. Another cohort study, which assessed a liberal fasting policy allowing 150ml water per hour up until admission to the operating theatre holding area, found that mean gastric volume was low (<0.8ml/kg) in both liberal and standard groups⁹.

Prolonged fluid fasting does not equate to smaller gastric volumes, higher residual pH or lower aspiration risk¹². 'Normal' gastric emptying for water and clear fluids is rapid and exponential, and shorter fluid fasting does not result in larger residual gastric volume or higher gastric pH. Conversely prolonged fluid fasting has been shown to increase gastric volume¹². Absolute fluid fasting is explicitly contra-indicated in most hospital pre-operative medicines management guidelines, where critical medicines are to be taken with water, often 50-100ml.

It should be acknowledged that hip fracture patients may have risk factors for delayed gastric emptying. Trauma, pain, anxiety and opioid medication have all been linked to delayed gastric emptying. Gastric physiology in trauma patients has not been studied in depth, though one small study found that 400ml carbohydrate drinks were well tolerated in hip fracture patients with a clearance half-time not different from elective hip replacement patients¹³. Our understanding of the relationship between gastric volume and aspiration risk is changing. Although aspiration is a very

significant anaesthetic complication, the absolute incidence is low: NAP4 reported 36 cases in approximately 115000 anaesthetics of which 8 patients died and two suffered brain damage¹⁴. Recent gastric ultrasonography studies suggest a 'full stomach' is much more common than previously thought, occurring in 5% elective anaesthetics and >50% urgent anaesthetics^{10,11}. This implies that the vast majority of patients with a 'full stomach' do not suffer clinically detectable aspiration. In hip fracture patients, the reasons for this are likely more to do with a) around 50% of patients have surgery under spinal anaesthesia; b) airway management is predominantly with either cuffed tracheal tubes or second generation supraglottic airway devices which are associated with lower rates of harmful aspiration. So, the absolute risk of aspiration is very low and often associated with risk factors, and there is little or no evidence that duration of preoperative fluid fasting reduces the risk of clinically detectable aspiration^{12,15}.

1.3 What is SipTilSend?

'SipTilSend' is a novel intervention which allows the patient to sip small volumes of water up until the point of sending for surgery. This goes beyond existing current fasting guidelines but appears to be well tolerated in elective patients. To our knowledge SipTilSend has not been studied in unplanned surgery. However, as already stated, no intervention to date has been successful at reducing fasting times and this relates not to the duration of the limit, but the fact the limit exists at all. Persisting with a set fasting limit for fluids for hip fracture patients will simply perpetuate prolonged fasting being necessary to accommodate short-notice list planning changes. Patients will continue to be uncomfortable, thirsty, nauseated and dehydrated until meaningful change is made to current fasting guidelines.

Water is of neutral pH and drinking water does not add to particulates in the stomach. Despite hip fracture patients often having risk factors for slower gastric emptying, water is likely to be rapidly cleared and drinking sips of water up to the point of being sent to theatre is unlikely to lead to significant change in gastric volume. Indeed, patients are already allowed a small amount of water for swallowing tablets, and no fasting restriction forbids this. All patients should already be routinely assessed for aspiration risk, and the anaesthetic planned accordingly.

SipTilSend has generated widespread interest in Scotland as a means of reducing fluid fasting in trauma patients. The concept is widely supported by trauma anaesthetists and is currently in the process of being adopted by a number of units. This statement is countersigned in support by trauma anaesthesia representatives from 7 Scottish Health Boards. This document aims to identify considerations for how SipTilSend should be introduced and controlled.

2. Recommendations

The SHFA Steering Group is not currently in a position to recommend changes to pre-operative fasting instructions or whether a 'SipTilSend' approach should be adopted at this time.

For units who are adopting alternative policies for fluid fasting for hip fracture patients such as 'SipTilSend', the SHFA Steering Group makes the following recommendations:

- The volume of fluid to be taken from 2h pre-operatively until theatre should be small e.g. <150ml per hour, and the volume and constituents of acceptable drinks should be stated in the fluid policy
- Units may wish to consider which – if any – patients should be excluded from SipTilSend. Clinicians should be free to adapt the policy on an individual basis depending their documented assessment of risk
- All patients should continue to receive assessment of aspiration risk as part of their routine anaesthetic assessment and the anaesthetic planned accordingly
- The policy should be introduced using Quality Improvement methodology, and should involve education and discussion with the wider multidisciplinary team including nursing and surgical colleagues. The policy should be introduced across the unit as a whole.
- Whilst our remit is for patients with hip fracture, it is logical to extend the same fasting policy to apply to all patients in the same unit, or at least all those patients on orthopaedic trauma wards as prolonged fluid fasting/deprivation regularly occurs across the board, and there is no logical reason to treat patients differently. Multiple fasting policies should be avoided.
- Units must collect data on significant adverse events such as pulmonary aspiration by approved mechanisms such as the DATIX incident reporting system, which should be analysed through a morbidity and mortality process, and should be used to inform changes to the fasting policy.

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Centre for Sustainable Delivery

The Scottish Hip Fracture Audit is part of the Trauma and Orthopaedic Programme within the Centre for Sustainable Delivery (CfSD). Day to day data collection is carried out by a network of audit coordinators in local units. Central data collection and analysis is provided by Public Health Scotland. The outcomes inform the Scottish Orthopaedic Service Delivery Group (SOSDG) which is the Orthopaedic Specialty Group within CfSD. The results are also disseminated to Healthboards via the Scottish National Audit Programme (SNAP), with responses required for outlying performance against the care standards.

Hosted by NHS Golden Jubilee, the new national Centre for Sustainable Delivery (CfSD) will play a vital role in supporting Scotland's national efforts to remobilise, recover and redesign (3Rs) towards a better health care system. Building on significant progress and developments that have already been made through redesign and transformation, the Centre will also support the rapid rollout of new techniques, innovation, and safe, fast and efficient care pathways for Scotland's patients.

The Centre will also offer customised assistance across NHSScotland to help tackle a variety of challenges in health and care.

By working in collaboration NHS Boards, health and social care partners, third sector, patients, academia and industry, CfSD aims to implement best practice through a 'Once for Scotland' approach, aligned with the priorities of the Scottish Government.

Working towards becoming a Global Centre of Excellence, CfSD will raise Scotland's profile as a forward thinking innovator of health and social care. The Centre for Sustainable Delivery will work with experts and patients across Scotland to achieve this.

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