The impact of preoperative fasting on regular oral medication administration

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Aims & Objectives

- The aims of this study were to investigate pre-operative fasting practices and examine the impact of pre-operative fasting practices on the continuity of administration of patients’ regular oral medications.
Patients awaiting surgery, whose fasting is initiated and managed in hospital, are often over-fasted. Many of these patients who are on long-term medication therapy for the management of chronic disease arrive to the operating theatre without having one or more of their regular oral medications.
Design

- A prospective, descriptive, exploratory approach was used.

Method

- Data were collected from patients’ medication charts, perioperative documents, and progress notes from October 6 to November 3, 2016.
## Fasting Guidelines

<table>
<thead>
<tr>
<th>Solids/Liquids</th>
<th>Fasting Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal meal</td>
<td>8 hours</td>
</tr>
<tr>
<td>Light meal</td>
<td>6 hours</td>
</tr>
<tr>
<td>Clear fluids, approved CHO drink</td>
<td>2 hours</td>
</tr>
</tbody>
</table>
## Fasting Guidelines

<table>
<thead>
<tr>
<th>Time of Decision</th>
<th>Rescheduled to ...</th>
<th>What to feed</th>
<th>Next Ready Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Evening session</strong> (LPM): 23:00 to 24:00</td>
<td>Next AM session</td>
<td>Normal light meal, to be completed by 02:00. May have water up to 06:00. Should have up to 400ml of CHO drink by 06:00</td>
<td>08:00 next day AM session</td>
</tr>
<tr>
<td><strong>During AM session</strong>: 10:00 to 11:00</td>
<td>Next PM session</td>
<td>200 ml CHO drink</td>
<td>2 h PM</td>
</tr>
<tr>
<td></td>
<td>Next IPM session</td>
<td>Light meal</td>
<td>6h IPM</td>
</tr>
<tr>
<td><strong>During PM Session</strong>: 15:00 to 16:00</td>
<td>Next IPM session</td>
<td>200 ml CHO drink by 16:00</td>
<td>2h IPM</td>
</tr>
<tr>
<td></td>
<td>Next AM</td>
<td>Normal Meal</td>
<td>Next Day AM session</td>
</tr>
</tbody>
</table>

Concerns with excessive fasting

- insulin resistance (Diks et al., 2005),
- dehydration, hypovolaemia, confusion (Hung, 1992), and
- increased levels of anxiety (Tosun, Yava, & Açıkel, 2015).
Impact of preoperative fasting on oral medication management

- The nil by mouth fasting instruction for preoperative patients is misleading and leads to subjective interpretation (Chand & Dabbas, 2007),

- Preoperative fasting creates confusion for both nurses and junior doctors often resulting in the discontinuation of regular medications (Chand & Dabbas, 2007; Kluger et al., 1991),

- Clinicians may not appreciate the importance of maintain regular medication administration (Pearse & Rajakulendran, 1999).
Role of the nurse in medication management during preoperative fasting

Nurses are responsible for administering prescribed medications but the perioperative period complicates this task due to:

- fasting, the complexity of the issue of using medications (Pass & Simpson, 2004), and
- the lack of consensus among doctors (Pearse & Rajakulendran, 1999; Symons & McMurray, 2014).
Importance of medication management of chronic disease

- Almost 50% of all Australians suffer from a chronic disease with one in five suffering from multiple chronic diseases (Australian Institute of Health and Welfare, 2016a),
- Chronic diseases manifest long-lasting symptoms and as a result, impact on the quality of life,
- Medications that control these symptoms are the cornerstone of chronic disease management,
- Chronic disease falls into one of eight categories: arthritis (osteoporosis and other musculoskeletal conditions), cancer, respiratory (asthma and chronic obstructive pulmonary disease [COPD]), cardiovascular disease, diabetes, mental health conditions, chronic kidney disease, and oral diseases (tooth decay and gum disease) (Australian Institute of Health and Welfare, 2016b).
Importance of medication management of chronic disease

- The foundation medications to combat cardiovascular events are aspirin and clopidogrel (Le Manach et al., 2014),
- Chronic obstructive pulmonary disease is treated by inhaling bronchodilators and corticosteroids (COPD-X Guidelines Committee, 2015),
- Insulin and oral antihyperglycaemics are medications used in managing diabetes (Diabetes Australia, 2015),
- Antihypertensives are the cornerstone in managing chronic renal disease (National Kidney Foundation, 2004).
- Parkinson’s disease is a degenerative disease and has no cure; the main form of treatment is medication (Australian Institute of Health and Welfare, 2012).
Non-therapeutic medication omission

- In an audit of cardiac medication administration, 42.2% of patients did not receive either one or more of their medications (Corfield et al., 2006).

- A separate study revealed that 49%, almost half, of all medications were not given on the day of surgery (Kluger et al., 1991).

- A third study gave evidence that showed only 41% of all patients suffering from cardiovascular disease received their medications in the preoperative period (Duthie et al., 1987).

- Similar results were found in a fourth study where 43% of patients did not have their medications administered to them prior to surgery (Pearse & Rajakulendran, 1999).
Consequences of non-therapeutic medication omission

Non-therapeutic omission of cardiac medications, antihypertensives, and statins have resulted in cardiac complications such as:

- severe postoperative hypertension, congestive heart failure, pulmonary oedema, and life-threatening dysrhythmias (Kennedy et al., 2000),
- other known complications are angina, myocardial infarction, rebound hypertension, ventricular arrhythmias, and sudden death (Kennedy et al., 2000; Reidenberg, 2011).
Consequences of non-therapeutic medication omission

Missed doses of antiparkinsonian medications may cause:

- medical complications, ensue prolonged hospital length of stay, and delayed recovery (Katus & Shtilbans, 2014),
- a worsening of their Parkinson’s disease including increased rigidity, agitation, difficulty swallowing, and hallucinations (Fagerlund et al., 2013),
- confusion and nausea; treating these conditions with antidopaminergic medications such as haloperidol and metoclopramide will only contribute to further decline (Derry, Shah, Caie, & Counsell, 2010).
Consequences of non-therapeutic medication omission

- There is clear evidence that shows that omissions of anticoagulants and antiplatelets in the preoperative period for patients with coronary stents have potentially life-threatening outcomes (Kristensen et al., 2014; The Cardiac Society of Australia and New Zealand (CSANZ), 2009; Weed et al., 2014).

- In patients who have had either metal or medication-eluding coronary stent procedures within 12 months prior to a subsequent surgery, coronary stent thrombosis is of major concern. To prevent the blot clots from forming, patients are often prescribed dual-platelet therapy consisting of aspirin and clopidogrel (Heart Foundation, 2013). There is evidence that shows approximately 40% of coronary stent thromboses have occurred in patients who were receiving either dual antiplatelet therapy or clopidogrel alone but had them ceased perioperatively (CSANZ, 2009).

- Ceasing oral antiplatelet medications has been identified as a sole predictor for critical ischaemic episodes and death (Collet, 2004).
Reasons for non-therapeutic medication omission in preoperative period

In a recent study (Symons & McMurray, 2014) investigating factors influencing nurses’ decisions to withhold oral medications pointed to three areas of focus:

- Ward culture, perception of their scope of practice, and various patient factors
- Ward culture embraced inconsistent practices, staffing, and communication and interpersonal relationships,
- Due to a lack of clear guidelines, lack of clear communication between the nurses and doctors, inconsistent instructions by medical staff, lack of education of nursing staff, and possibly personality clashes among the nurses.
Results

- There were 55 patients included in the study,
- Patients were often over-fasted with a mean fasting time of 11.0 hours for solids and 10.8 hours for liquids,
## Administration of oral medications

<table>
<thead>
<tr>
<th></th>
<th>Frequency (N=184)</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given</td>
<td>84</td>
<td>45.7</td>
</tr>
<tr>
<td>Not given</td>
<td>73</td>
<td>39.7</td>
</tr>
<tr>
<td>Unknown</td>
<td>27</td>
<td>14.7</td>
</tr>
</tbody>
</table>
Conclusion

- Patients were fasted in excess of fasting guidelines.
- More than half of the oral medications prescribed to be administered during the preoperative fasting period potentially resulted in non-therapeutic medication omissions.
Strengths and limitations

- The study was conducted at two hospitals of a single health service. It is not clear whether the findings are representative of other hospitals.
- The study was reliant on medical record data so there may have been care delivered but not documented (Bothamley & Mardell, 2005).
- There was missing data in relation to medications making it difficult to understand what actually happened.
- As many patients are admitted on the day of surgery, the sample size for the study was limited by patients having to have commenced their fasting in hospital under the direction of the clinical teams.
Strengths and limitations

- This is the first study in Australia to examine two nursing practices that are inextricably linked: preoperative fasting and oral medication administration.

- Although opinions, attitudes, and knowledge of clinicians were not examined in this study, the recorded evidence of practice by nurses and doctors gives information to guide future research.

- This study was conducted at a major Victorian health service and in two different hospitals. There was a spread of data across different sites.

- The prospective approach and rigorous inclusion criteria also adds to its strength.
Implications for further research

- Future research needs to examine the barriers in accessing best practice guidelines, the barriers nurses’ experience in understanding them, and the barriers to guideline implementation.
- Further research is required to look at missed medications and patient outcomes.
- Barriers nurses experience in the management of preoperative patients’ oral medication administration, their communication via the use of documents and documentation, and the patient preoperative fasting experience also needs to be studied.
Implications for policy and practice

- Preoperative fasting guidelines need to be clearly understood by surgical nurses in order to best advocate for their patients.
- Access to hospital guidelines need to be made easy and available in a variety of formats to all clinical staff.
- The active participation of all clinicians is essential in supporting their patient during the preoperative pathway.
- Members from the surgical and/or anaesthetic team need to communicate fasting requirements more accurately for each patient differentiating times between solids and liquids (Jester & Williams, 1999).
Implications for policy and practice

- Informing the nurse of the last possible time the patient can have food or drink as a prescription will assist in ensuring patients are properly nourished and not dehydrated (Jester & Williams, 1999).
- A practice of prescribing the accepted and promoted carbohydrate-rich drink to suitable patients on the patients’ medication charts should also be implemented.
- The use of electronic medication records (EMR) should be used to prompt the last meal and drink for each patient.
- Timers to be used on the wards as “Hunger Clocks” should be made readily available to monitor elapsed time between cancelled and rescheduled surgeries.
References

References

References


- Mendelson, C. L. (1946). The Aspiration of Stomach Contents into the Lungs During Obstetric Anesthesia *Anesthesiology (Abstracts Only), 7*(6), 694-696.

References


