
Burns

Eleven Things Physicians and Patients Should Question

by
Burns Canada
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1 Do not administer prophylactic antibiotics to patients presenting with acute burn injuries.

The available evidence does not support the routine use of early systemic antibiotic prophylaxis in the management of patients with acute burn injuries. In addition to exposing patients to side-effects, antibiotic use without indication encourages the development of resistance, thus reducing treatment options during the patient's hospital course. Topical antimicrobial dressings are the standard of care for these patients.

2 Do not routinely swab open wounds and do not prescribe systemic antibiotics based on these results, without clinical features of local or systemic infection.

Most wound swabs in the context of a burn injury will yield bacterial growth. These organisms may be commensal organisms not responsible for wound infection or sepsis, and do not warrant therapy. The use of systemic agents predisposes to antimicrobial resistance, is expensive, and may also expose patients to unnecessary side-effects. Burn wound swabs should form part of standardized admission surveillance programs for resistant organisms such as MRSA.

3 Do not transfuse red blood cells to patients with burn injuries who have haemoglobin levels greater than 70 g/l, unless there is active haemorrhage or myocardial ischaemia.

Blood products are a limited resource. Blood transfusion is associated with adverse effects, including transfusion reactions, immunosuppression, lung injury, and circulatory overload. In the context of stable patients with burn injuries, who are not actively bleeding or with active myocardial ischaemia, the current evidence supports a restrictive transfusion trigger to maintain haemoglobin above 70g/l. Unnecessary transfusions can also be avoided by ordering and infusing one unit of red blood cells at a time (with interval blood tests to confirm indication for a further unit), rather than ordering two units immediately.

4 Do not attempt to normalise albumin with albumin infusions following the acute phase of burn resuscitation.

Albumin infusions are part of the acute resuscitation strategy of many burn centres globally, and may be associated with the administration of smaller volumes of crystalloid. Patients with severe burn injuries frequently develop chronic hypoalbuminaemia following resuscitation, due to hypermetabolism, fluid and protein loss from wounds, and impaired albumin synthesis. Attempting to restore serum albumin levels with the continuous infusion of human albumin solutions does not appear to improve outcomes in burn patients, and is costly.

5 Do not administer opioid analgesics to patients with burn injuries without considering the co-administration of adjunctive agents, as well as psychological and physical strategies.

Reliance on opioids as the dominant or only analgesic is associated with harms including not only higher opioid requirements and significant side-effects e.g. nausea, constipation, drowsiness, but also dependence, diversion, and overdose. One should implement a multi-modal analgesic strategy including acetaminophen and NSAIDs if there are no contra-indications. One should also consider medications directed at neuropathic pain (e.g. gabapentin, pregabalin, duloxetine, amitriptyline), as well as physical (e.g. positioning) and psychological (e.g. distraction, relaxation, meditation) interventions to optimize mental health, reduce anxiety and promote effective sleep.

6 Do not administer analgesia and sedation (e.g. opioids and benzodiazepines) without regular titration, interruption or dose reassessment of the administered agents.

It is important to regularly review the indication and dosage of analgesia and anxiolytics (including but not limited to opioids and benzodiazepines) in patients mechanically ventilated for their burn injuries. Higher doses of opioids and benzodiazepines are associated with delays in extubation, an increased risk of systemic infections (including ventilator associated pneumonia), deep vein thrombosis, delirium, and longer hospital stays, which in turn result in deconditioning, and long-term psychological effects.

7 Do not undertake medical or surgical procedures if these are inconsistent with the burn patient's expressed goals of care.

All patients should have a goals of care discussion (between the health care team and the patient and/or substitute decision maker) during the first 48 hours of their hospital stay. This is especially relevant for patients with extensive burn injuries, the elderly, and those at high risk of death. Interventions should only be undertaken when they are in keeping with the patient's previously expressed goals of care or best interests, as determined by the patient's substitute decision-maker in conjunction with the clinical team.

8 Do not routinely initiate fluid resuscitation when the burn is less than 15% total body surface area (TBSA).

Partial and full thickness burns affecting less than 15% of the TBSA do not require specific directed fluid resuscitation. Patients with burn injuries under 15% can typically meet their requirements with maintenance intravenous fluid infusions or oral fluid intake alone. There may be other associated indications for fluid replacement, however, such as concomitant trauma, dehydration, alcohol intoxication, or other fluid losses.

9 Do not perform routine investigations such as daily blood tests or chest radiographs unless they will guide decision making with respect to management of the patient with burns.

The medical team should regularly reassess the indications for routine daily bloodwork and chest radiographs as the clinical course proceeds, especially when there has been no significant intervening condition change. Several studies have demonstrated the cost benefits of such a strategy, without compromising the delivery of optimal patient care.

10 Do not excise and autograft partial thickness burns, including scald burns in children, without a period of wound care and observation, unless obvious deep partial thickness.

A significant proportion of partial thickness burn injuries will heal within two to three weeks without surgery. A period of observation of a week or more, especially in smaller burns, will allow the wound to manifest features of healing or the capacity to heal. This is especially true in the context of paediatric scald burns, the most common category of burn injuries globally. A conservative approach to the management of these wounds has the potential to reduce healthcare costs, the need for operative procedures, and the impact of donor site wound care and pain. There is also limited evidence to suggest that a wound that heals within three weeks is more likely to scar prominently when compared to a split thickness skin graft.

11 Do not recommend the administration of hydroxyobalamin (Vitamin B-12A or 'cyanokit') to patients prior to assessment in the burn centre, unless the history and investigations strongly support its use.

Evidence supporting the routine use of hydroxycobalamin is weak and may be associated with the development of renal impairment. Hydroxycobalamin may be administered in the burn centre in the setting of a severe inhalation injury and uncorrected worsening metabolic acidaemia. Patients with a strong clinical picture of severe inhalation injury who require prolonged transport to a burn centre may be the exception to this rule.

How the list was created

This list was created by a working group of burn surgeons and intensivists from across Canada.

A list of 35 themes were developed from initial discussions, and then a modified Delphi process using Survey Monkey enabled the collaborators to systematically stratify statements from 0-5 (strongly disagree, disagree, indifferent, agree and strongly agree). Consensus of expert opinion and evidence from the literature informed the final wording of the statements.

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About Burns Canada

Burns Canada is a working group of burn surgeons and intensivists from across Canada.

About Choosing Wisely Canada

Choosing Wisely Canada is the national voice for reducing unnecessary tests and treatments in health care. One of its important functions is to help clinicians and patients engage in conversations that lead to smart and effective care choices.

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