

Transfusion-related acute lung injuries identified in burn patients.

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New criteria helps clinicians identify complications arising from blood transfusions.

Researchers at one of the largest burn centres in Canada have confirmed that in rare cases, burn patients with acute lung injuries (ALI) may experience pulmonary complications due to blood transfusions.

Known as transfusion-related acute lung injury (TRALI), it is a rare but serious condition that occurs in about 1 in 5000 patients who receive blood products. The majority of TRALI cases resolve themselves within 72 to 96 hours; however, they are still the biggest cause of mortality in blood transfusion procedures. Burn patients, in particular, are at risk because of the amount of blood they receive during surgeries like skin graft procedures. The study, published in the January/February edition of the Journal of Burn Care & Research, provides medical practitioners with criteria to correctly identify TRALI in burn patients receiving blood products

"A significant number of burn patients have existing ALIs prior to blood transfusions," says Dr. Robert Cartotto, lead author of the study and attending surgeon in the Ross Tilley Burn Centre at Sunnybrook Health Sciences Centre. "The criteria that exists to determine if a blood recipient has developed TRALI do not apply to patients with existing lung injuries, which is a limitation in burn patients. We were interested in defining or recognizing TRALI in these patients, as TRALI has neither been reported nor systematically described in the burn literature to date."

Currently, the TRALI consensus definition incorporates the onset of ALI within six hours after transfusion; it does not clarify how to define TRALI in patients with pre-existing ALI.

"If a burn patient's respiratory status worsens during or after a transfusion, the existing definition makes it difficult to determine whether their respiratory deterioration is because of the blood transfusion or because of their underlying burn injury," says Cartotto, who is also an associate professor in plastic surgery in the University of Toronto's department of surgery.

If it is indeed because of the transfusion, then the necessary steps need to be taken to identify and eliminate that particular blood product from the supply.

"Women who have had children and those who have been transfused make antibodies against white cells and tissues," says Dr. Jeannie Callum, co-author of the study and director of transfusion medicine & tissue banks at Sunnybrook. "If their blood is donated and the recipient just happens to have the antigen that the donor antibody is against, we have TRALI."

To develop preliminary criteria for TRALI in burn patients, the researchers studied a computerized database of 25 burn patients who had received a total of 124 blood transfusions. Existing ALI or ARDS were present before 51% of the transfusion events. The condition of six patients worsened after the transfusion. In two of these cases the deterioration appeared to be related only to the transfusion, as there were no other risk factors evident, aside from the burn injury.

"This study garners recognition and awareness for TRALI in burn patients and acknowledges the need to develop a way to identify the condition in these patients," says Cartotto. "Medical personnel need to have an appreciation for the syndrome and carefully monitor those receiving blood transfusions, especially burn patients."

About the Ross Tilley Burn Centre

One of the largest in Canada, the Ross Tilley Burn Centre complements Sunnybrook Health Sciences Centre's world renowned Trauma Program. The burn centre is a state-of-the-art facility providing tertiary care for the majority of burn injury patients in the province. It is the only program of its kind in the province providing a wide range of services from admission to follow-up and reconstructive surgery. Advances in burn care developed by Sunnybrook experts over the last two decades have helped to improve the patient's burn assessment treatment.

Media Contact:
Melanie Lepper
416.480.4040