Limited Exposure To Blood Transfusion Increases Morbidity And Mortality After Surgery

Studies advocate blood conservation and appropriate indicators for transfusion

IRVINE, Calif., June 8 /PRNewswire-FirstCall/ -- Masimo (Nasdaq: MASI), the inventor of Pulse CO-Oximetry(TM) and Measure-Through Motion and Low-Perfusion pulse oximetry, announced that two new studies – one conducted in patients undergoing general surgery and published in the Journal of American College of Surgeons and another conducted in patients undergoing cardiac surgery and published in the Anesthesia & Analgesia – provide additional new evidence that transfusion of just one or two units of blood significantly increases infection, pneumonia, sepsis, and mortality after surgery.(1,2) These studies suggest that transfusions and their associated risks could be "largely avoided" through implementation of better blood management techniques and "more appropriate indicators" for transfusions.

Blood transfusions may be necessary to ensure survival when a patient is bleeding heavily or has severe symptomatic anemia. However, transfusions are also given in the presence of stable anemia or when significant blood loss is expected but does not occur. These two new studies add to the growing evidence that transfusions carry life-threatening risks and urge that in the absence of benefit from transfusion, avoidance of transfusions through the use of more restrictive transfusion practices could improve patient outcomes.

In the general surgery study, researchers evaluated 125,177 patients from 121 hospitals and showed that after adjusting for all risk variables, transfusion of a single unit of blood increased 30-day mortality by 32% and morbidity (pneumonia, sepsis, or surgical site infection) by 23%. Transfusion of two units of blood increased the mortality risk by 38% and morbidity risk by 40%. In the cardiac surgery study, researchers evaluated long-term survival of 9,079 patients at eight hospitals and showed that transfusion of one or two units of blood increased six-month mortality 67% and five-year mortality 16% .

"These two new studies demonstrate that the risk of blood transfusion is significant and thus we should avoid transfusions when ever possible," stated Dr. Aryeh Shander, Clinical Professor of Anesthesiology, Medicine and Surgery at Mt. Sinai School of Medicine in New York, NY. "The current practice of using intermittent, invasive measurements of hemoglobin to help guide transfusion decisions may contribute to unnecessary blood transfusions. Blood transfusion should not simply be based on any particular level of hemoglobin but rather a thorough evaluation of the patient, including whether hemoglobin levels are stable or changing. The ability to continuously and noninvasively trend a patient's hemoglobin level offers a breakthrough in blood management.

Continuous and noninvasive SpHb(TM) monitoring has the potential to greatly improve clinical decision-making and reduce patient exposure to allogeneic transfusion, reduce complications, and preserve a precious resource and costs."

Masimo continuous and noninvasive hemoglobin monitoring (SpHb) technology is available as part of the upgradeable Masimo Rainbow SET(R) Pulse CO-Oximetry platform.

(1) Bernard AC et al. Intraoperative transfusion of 1U to 2U of packed red blood cells is associated with increased 30-day mortality, surgical site infection, pneumonia, and sepsis in general surgery patients. Journal of the American College of Surgeons. 2009; 208:931-937.

(2) Surgenor SD et al, for the Northern New England Cardiovascular Disease Study Group. The Association of Perioperative Red Blood Cell Transfusions and Decreased Long-Term Survival After Cardiac Surgery. Anesthesia & Analgesia 2009; 108:1741-1746.

Source URL (retrieved on *12/05/2013 - 9:40am*):
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