

Clinical Pathology Abstracts, 12/15

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Optimizing transfusion ratios in massive transfusion protocols

The 1:1:1 ratio of packed red blood cells to plasma to platelet use for massive transfusion emerged out of data on mortality in military personnel wounded in combat. Many studies have investigated the optimal ratio for use in massive transfusion. The literature is controversial, and studies continue to support and refute the 1:1:1 ratio. A special report detailed herein explained the rationale behind the authors' conclusions that although the 1:1:1 ratio might be within the range of hemostasis, it falls near the lower limits, making it less than ideal. The authors noted that there is much nonhemostatic fluid added during component preparation and this is not accounted for when considering fluid balance and the ideal ratios for massive transfusion. For example, plasma and platelets contain levels of coagulation factors that are diluted by approximately 20 percent during the introduction of anticoagulant solution. Therefore, combining the components into a 1:1:1 ratio to reconstitute whole blood is not the same as a unit of whole blood. The data in the report showed a curve, which demonstrates that the minimum level of coagulation factors and hematocrit is the range in RBC:plasma ratios of 1:1 to 3:1, where the 1:1 ratio is on the cusp of hemostasis. The authors concluded that, ideally, point-of-care testing would guide resuscitation therapy. However, this even has limits in interpretation. As a general caution, the optimal ratio should be defined on a case-by-case basis.

Gregory JA, et al. Optimizing transfusion ratios in massive transfusion protocols: an argument against the 1:1:1 dogma and approach to trauma resuscitation. *Lab Med*. 2015;(2)46:e46-e52.

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Yoga in adults with arthritis

People with arthritis require physical activity to preserve their mobility and help manage their disease. The stress-reduction benefits of exercise can help them cope with arthritis and may, according to emerging evidence, have positive effects on systemic inflammation and immune function. Yoga is noted to be well-suited for people with arthritis because it combines physical activity with stress-management techniques, including controlled breathing, relaxation, and mindfulness. The authors conducted a study to evaluate the effect of integral-based hatha yoga in sedentary people with arthritis. They studied 75 sedentary adults 18 years or older who had rheumatoid arthritis or knee osteoarthritis. The participants' average disease duration was nine years and average age was 52 years. Forty-nine percent of them had rheumatoid arthritis. The participants were randomly assigned to eight weeks of yoga—two 60-minute classes and one home practice per week—or a waitlist. Poses were modified for individual needs. The primary endpoint was physical health. For the cohort that completed yoga, the authors evaluated the long-term effects nine months after the yoga classes ended. After eight weeks, yoga was associated with significantly higher physical component summary (PCS) scores and lower Center for Epidemiologic Studies Depression Scale. Twenty-two of 28 people in the waitlist group completed yoga. Among all the yoga participants, significant improvements were observed in mean PCS, flexibility, six-minute walk, and all psychological and most

health-related quality of life domains at eight weeks, with most still evident nine months later. The authors concluded that preliminary evidence suggests that yoga may help sedentary people with arthritis safely increase their physical activity and thereby improve their physical and psychological health.

Moonaz SH, Bingham III CO, Wissow L, et al. Yoga in sedentary adults with arthritis: effects of a randomized controlled pragmatic trial. *J Rheumatol*. 2015;42:1194-1202.

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