

# Clinical Pathology Abstracts, 7/15

Editor: Deborah Sesok-Pizzini, MD, MBA, professor, Department of Clinical Pathology and Laboratory Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, and chief, Division of Transfusion Medicine, Children's Hospital of Philadelphia.

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## **A study of biologic augmentation of rotator cuff repair with mesenchymal stem cells during arthroscopy**

Bone marrow-derived mesenchymal stem cells from the iliac crest have the potential to become a variety of adult tissue cells, including tenocytes, chondrocytes, and osteoblasts, as well as provide growth factors for soft and hard tissue regeneration. The authors conducted a study that used bone marrow-derived mesenchymal stem cells (MSCs) as an adjunct to rotator cuff repair for improved outcomes, including faster healing and higher quality tendon integrity. More specifically, the prevalence of healing and prevention of re-tears were correlated with the number of MSCs injected at the repair site. Investigators studied 45 patients who received concentrated MSCs as an adjunct to rotator cuff repair at the time of arthroscopy. The patients received an average of  $51,000 \pm 25,000$  MSCs. A matched control group of patients who did not receive MSCs was used for comparison. The results showed the MSC injection as an adjunctive therapy enhanced the rate of healing and improved the quality of the repair, as evidenced by ultrasound and MRI. The data showed that 100 percent of the MSC-augmented repairs healed by six months compared with 67 percent of the repairs without MSC treatment. The study also reported a significant improvement in tendon integrity with the MSC-treated group compared with the control group after a 10-year follow-up. The authors concluded that this study supports MSC augmentation in rotator cuff repair for an enhanced rate of healing and reduced number of re-tears.

Hernigou P, Lachaniette CHF, Delambre J, et al. Biologic augmentation of rotator cuff repair with mesenchymal stem cells during arthroscopy improves healing and prevents further tears: a case-controlled study. *Int Orthop*. 2014;38:1811-1818.

Correspondence: P. Hernigou at [philippe.hernigou@wanadoo.fr](mailto:philippe.hernigou@wanadoo.fr)

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## **Effectiveness of multiple initiatives to reduce blood component wastage**

Wastage of blood components is an important utilization and cost issue for hospitals. A robust patient blood-management program identifies and addresses reasons for wastage. However, targeted interventions may be costly and may not have the desired outcome of preventing waste. The authors conducted a study in which they examined multiple low-cost initiatives to reduce waste, including educational outreach, print and digital messaging, and improved transportation and component-identification modalities. They compared blood component wastage rates for the 16 months following implementation of the low-cost interventions to rates during the 16 months prior to the interventions. The authors determined that the most significant changes were a reduction in platelet wastage from 3.71 percent to 2.81 percent ( $P=0.001$ ) and a decrease in red blood cell wastage from 0.67 percent to 0.56 percent ( $P<0.001$ ). Plasma wastage, on the other hand, increased from 1.14 percent to 1.40 percent ( $P<0.001$ ), which the authors attributed to apheresis procedures that were cancelled after the plasma was thawed. The net cost savings of these low-cost interventions was \$131,520. The authors concluded

that this study demonstrates that relatively inexpensive interventions can have a direct impact on reducing blood wastage and improve utilization and cost savings.

Collins RA, Wisniewski MK, Waters JH, et al. Effectiveness of multiple initiatives to reduce blood component wastage. *Am J Clin Pathol*. 2015;143:329-335.

Correspondence: Dr. Mark H. Yazer at [myazer@itxm.org](mailto:myazer@itxm.org)