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Autor(en) des Beitrags: Intravia, Jessica; Allen, Donald A; Durant, Thomas Js; McCarthy, Mary Beth R; Russell, Ryan; Beitzel, Knut; Cote, Mark P; Dias, Feliciano; Mazzocca, Augustus D

Titel des Beitrags: In vitro evaluation of the anti-bacterial effect of two preparations of platelet rich plasma compared with cefazolin and whole blood.

Abstract: This study investigates the antibacterial properties of two different platelet-rich plasma (PRP) platelet concentration preparations (PRPLP and PRPHP) through a time-kill assay. Two different PRP preparations - a single spin process yielding lower white blood cells and platelet concentration (PRPLP) and one yielding high platelet and white blood cell concentration (PRPHP) - were obtained from 2 individuals. PRPLP, PRPHP, phosphate buffered saline (PBS), whole blood and Cefazolin were added to experimental reaction tubes, each containing a single bacterial inoculum of Staphylococcus aureus (S. aureus), Staphylococcus epidermidis (S. epi), methicillin-resistant Staphylococcus aureus (MRSA) or Propionibacterium acnes (P. acnes). Two dilutions (1:1,000, and 1:10,000) were plated in duplicate tubes, along with positive (blood and PBS) and negative (Cefazolin) controls and assessed at five time points (0, 1, 4, 8 and 24 hours). After centrifugation, platelet count of PRPLP was 386 ± 65.5 × 10^3/?L and PRPHP was 867± 234.4 × 10^3/?L. Both PRP products showed a significant decrease (p<0.05) in bacterial growth at 8 hours compared to whole blood. The application of PRPLP and PRPHP showed a significant decrease in bacterial growth after 8 hours for S. aureus, S.
epi, MRSA and P. acnes compared to the whole blood control group. S.epi, MRSA, and P. acnes also showed a significant decrease in bacterial growth after 24 hours. Despite differences in platelet concentration and WBC concentration, no difference in antibacterial activity was seen between the two preparations.