2023 Congress Abstracts: Sports Medicine

The Impact of Covid-19 Pandemic Restrictions on the Incidence of Stress Reactions and Fractures Among Division 1 NCAA Athletes

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Summary:
Female cross country athletes had lower rates of bony injury in the immediate post-COVID season while male swimmers had higher rates.

Data:
Background: The spread of the coronavirus disease 2019 (COVID-19) in February and March of 2020 led to the cancellation of major athletic leagues and sporting events worldwide. In the Pac-12 conference, competitions were cancelled from March to November 2020. While prior studies in professional athletes have shown an increased rate of stress injuries and fractures after long periods of detraining, no studies have explored the impact of such a long period of detraining on college athletes. This study aimed to compare the rate and characteristics of bony injuries among NCAA Division 1 athletes before and after the COVID-19 associated suspension of intercollegiate athletics (CASIA).

Methods: The Pac-12 Sports Injury Research Archive contains all injuries that take place during official NCAA competitions or practices. This database was queried for all in-season, sport-related bony injuries (defined as all stress reactions and fractures) that occurred across all sports from January 2016 to June 2021. The bony injury rate per 1,000 athlete exposure hours (AEH) was calculated and compared between the immediate post-CASIA season and historic rates from pre-CASIA seasons (2016-2019). Injury etiology, timing of onset, severity, rate of procedural intervention, injury mechanism (contact versus non-contact), and likelihood of injury during the 4th quarter of competition (final 25% of competition) was also compared between the pre- and post-CASIA time periods. Results were stratified by gender and sport. Results: A total of 781 bony injuries across 23 sports were identified. For the majority of sports, there was no significant difference in bony injury incidence rate between the pre- and post-CASIA time periods. However, female cross-country runners, the athlete demographic with the highest historic injury rate pre-CASIA at 0.57 injuries per 1000 AEH, demonstrated a significantly lower bony injury incidence rate in the post-CASIA season (Incidence Rate Ratio (IRR) 0.43, 95% confidence interval 0.21-0.85). On the other hand, male swimming athletes were found to have a statistically significant increase in bony injury rate from 0.01 to 0.09 injuries per 1000 AEH between the pre- and post-CASIA time periods. Across all sports, the proportion of bony injuries attributed to a repetitive trauma mechanism increased from 14% pre-CASIA to 26% post-CASIA while the proportion of these injuries attributed to a running mechanism decreased from 43% pre-CASIA to 29% post-CASIA (p=0.011). Conclusion: Across all sports, there was no consistent trend towards increased rates of bony injury in the immediate post-CASIA season. However, female cross country runners demonstrated lower rates of bony injury in the post-CASIA season while male swimmers demonstrated higher rates. Furthermore, bony injuries in the post-CASIA season were more likely to be the result of repetitive trauma and less likely to be from running. These findings demonstrate that the pandemic had a variable impact on athletes from different sports, emphasizing the importance of implementing return to sport protocols that reflect the sport-specific effects of detraining.

Category: Sports Medicine

Major Inter And Intra-Patients Variability In Platelet-Rich Plasma Based On: Patient’s Age, And Baseline Platelet Count: An Analysis Of 357 Patients

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Summary:
The final composition of PRP (platelet count) was significantly influenced by patient’s age and baseline blood platelet count. This study raises awareness regarding the potential need for quality release criteria to assess baseline blood and/or final PRP composition when using PRP in routine clinical practice.

Data:
Background: There is a lack of studies in the literature evaluating the variability in the final composition of platelet rich plasma (PRP) based on the patient’s demographics and baseline blood count. Purpose: (1) To evaluate the effect of age, sex, body mass index (BMI) and baseline blood count on the final composition of PRP; and (2) To evaluate the variability of PRP applied in the same patient at two different timepoints. Methods: A total of 403 PRP injections from 357 patients were analyzed from an institutional prospective registry of PRP between January 2019 and December 2021. Patient demographics were recorded as well as baseline blood count of all patients treated with PRP for a musculoskeletal condition. In addition, the final concentration of platelets, leukocytes, and erythrocytes of the PRP prepared for each patient was quantified. The influence of sex, gender, BMI, age, and baseline blood count on final platelet concentrations in PRP was evaluated. In addition, to evaluate intrapersonal variability, the first dose of PRP platelet counts was compared to the second dose of PRP platelet counts between 34 patients who received two doses of PRP. Results: A directly proportional variation in PRP platelet count of 3.8X was observed for each unit increase in baseline blood platelet count. For every decade increase, we observed an approximate decrease of 32,666 platelets. When the first dose of PRP platelet counts was compared to the second dose of PRP platelet counts between the same patients, significant differences were found. A mean of 890,018 platelets in the first PRP and a mean of 1,244,467 in the second PRP with a mean difference of 354,448 was found (p 0.008). We did not find differences in the final concentration of platelets regarding sex, BMI, or PRP protocol. Conclusions: Overall the final composition of PRP (platelet count) was significantly influenced by patient’s age and baseline blood platelet count. In contrast, BMI, gender and the rest of the components of the baseline blood count did not have a significant influence on final PRP. Furthermore, in patients who received two doses of PRP, the final concentration of platelets varied significantly between the two preparations. This study raises awareness regarding the potential need for quality release criteria to assess baseline blood and/or final PRP composition when using PRP in routine clinical practice. Level of Evidence: II Prospective cohort study