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## **IMMUNOGLOBULIN AS A PREDICTOR OF COMPLICATED BONE CONSOLIDATION AFTER COVID-19**

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### **Annotation**

In the post-COVID-19 era, delayed consolidation of long tubular bone fractures has become a pressing issue due to lingering systemic inflammation, microvascular dysfunction, and disruptions in calcium-phosphorus metabolism and osteotropic cytokines, which negatively affect bone healing. This article provides scientific research information about immunoglobulin as a predictor of complicated bone consolidation after COVID-19.

**Keywords:** bone healing, Post-COVID-19, patients, bone fractures.

### **Relevance:**

Recent studies have shown that immunoglobulin E (IgE) contributes not only to allergic reactions but also plays a role in chronic inflammatory processes. IgE may be involved in disrupting normal bone regeneration by promoting prolonged immune activation. This effect is especially relevant in post-COVID conditions, where immune imbalance can lead to impaired healing and tissue remodeling.

### **Purpose of the study:**

To evaluate the prognostic value of IgE levels in patients with delayed and complicated bone consolidation after COVID-19.

### **Materials and Methods:**

126 post-COVID patients with long bone fractures were divided into three groups by healing type. Serum IgE levels were determined by Xema and stratified by COVID-19 severity.



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### Research Results:

IgE levels remained low in patients with normal bone healing but increased 1.2–1.4× in cases of delayed consolidation. In moderate COVID-19, IgE rose over 3× in complicated cases, significantly more than in other groups ( $p < 0.05$ ). Severe COVID-19 patients showed the highest IgE levels (up to 161.4 IU/ml), 3.4× the control group. Statistically significant differences in IgE were found across all healing types and COVID-19 severities ( $p < 0.01$ ). These findings suggest involvement of Th2-driven inflammation and allergy-like mechanisms in impaired bone healing.

### Conclusion:

Elevated IgE in post-COVID patients with complicated fracture healing highlights its potential as a prognostic marker. Including IgE in diagnostic protocols may improve management of post-COVID bone disorders.

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