Tonsillar Mesenchymal Stem Cells Derived Cream for Muscular Dystrophy in Rats

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Duchenne Muscular Dystrophy (DMD) is a severe genetic condition that causes progressive muscle weakness and degeneration. Despite current treatments focusing on symptom management, no cure exists to halt the disease's progression. This project explores an innovative approach using mesenchymal stem cells (MSCs) derived from discarded tonsil tissue to treat DMD. Tonsil-derived MSCs (T-MSCs) were cultured, differentiated into muscle cells, and administered to dystrophic albino rats via tail vein injections (5.5 mL every two days for six weeks). Results demonstrated significant improvements in muscle health: biochemical markers of muscle damage (AST, LDH, CK) decreased to near-normal levels, histological analysis confirmed muscle regeneration, and treated rats exhibited enhanced muscle strength, respiration, and digestion. Additionally, inflammation and fibrosis were reduced without observable long-term side effects. This study highlights the potential of repurposing biological waste into a scalable therapeutic solution for DMD, offering hope for improved quality of life for affected individuals.

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