

# INDIVIDUALS WITH SICKLE CELL DISEASE AND CHRONIC JOINT PAIN DISPLAY INCREASED LEVEL OF SERUM BRAIN-DERIVED NEUROTROPHIC FACTOR

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Afiliação

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**Introduction:** Altered levels of brain-derived neurotrophic factor (BDNF) are associated to central sensitization in conditions of chronic musculoskeletal pain, but this it has not yet been shown in individuals with sickle cell disease and chronic pain due to hip osteonecrosis. **Objective:** To measure BDNF levels in sickle cell individuals with chronic pain due hip osteonecrosis and to compare with healthy individuals without pain. **Methods:** Cross-sectional observational study with 17 individuals (8 healthy control, 9 patients with SCD, age 35,35±9,38). Serum BDNF levels were measured with an enzyme-linked immunosorbent assay (ELISA), according to the manufacturer's instructions. The variables had a non-normal distribution and were therefore used the Mann-Whitney test to compare the two groups. The study was ethically approved under the CAAE 31237514.1.0000.0042 at the Faculdade Adventista da Bahia Ethics Committee. All participants read and signed the informed consent. **Results:** Serum levels of BDNF in sickle cell individuals had higher median values, 1326.97 (IQR = 692.53 - 1686.57), compared with controls 302.38 (IQR = 252.12 - 389.79) and P value = 0.001. **Conclusion:** Individuals with sickle cell disease and chronic pain due to hip osteonecrosis present high systemic levels of BDNF compared to healthy individuals. These altered BDNF levels may be one of the key features for the maintenance of pain in these individuals. These findings may help to understand the mechanisms underlying central sensitization, a maladaptive phenomenon in the brain that may possibly be present in individuals with sickle cell disease. Therapeutic strategies, such as neuromodulation, that aim to reverse altered levels of BDNF may be useful for the treatment of these population.

**Key words:** Chronic pain, Sickle cell disease, Hip osteonecrosis, Brain derived neurotropic factor.