

The comparisons of blood plasma and cerebrospinal fluid S100B protein concentrations in patients with Alzheimer`s disease, amyotrophic lateral sclerosis, and multiple sclerosis

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ABSTRACT

Introduction: S100 calcium-binding protein B (S100B) is a biochemical marker of astroglial damage.

Purpose: To assess the pathophysiological implications of S100B concentrations in blood plasma and cerebrospinal fluid of patients with neurodegenerative central nervous system disorders.

Materials and Methods: In this study, we determined and compare S100B concentrations in blood plasma and cerebrospinal fluid obtained from subjects diagnosed with Alzheimer's disease (n=20), amyotrophic lateral sclerosis (n=12), multiple sclerosis (n=40) and the reference group (n=20), using enzyme-linked immunosorbent assay.

Results: Concentrations of S100B in plasma collected from patients diagnosed with Alzheimer's disease (252,38±183,50 pg/mL) and multiple sclerosis (164,92±250,14 pg/mL) were above laboratory standards, but in patients with amyotrophic lateral sclerosis (53,96±56,92 pg/mL) and the reference group (2,12 pg/mL) were below

laboratory norms (N>75 pg/mL). Concentrations of S100B in plasma collected from patients with Alzheimer's disease (252,38±183,50 pg/mL) were significantly higher than in patients with amyotrophic lateral sclerosis (53,96±56,92 pg/mL) (p<0,029). Concentrations of S100B in CSF collected from the reference group (546,96±236,62 pg/mL) and from patients with Alzheimer's disease (587,53±189,57 pg/mL), amyotrophic lateral sclerosis (404,41±179,56 pg/mL), multiple sclerosis (462,03±146,01 pg/mL) were very similar, and none of pairwise comparisons reached statistical significance.

Conclusions: Results of our studies indicate the importance of S100B protein concentration assessment in blood in central nervous system disorders differential diagnostics.

Keywords: S100, blood, cerebrospinal fluid, Alzheimer's disease, Amyotrophic lateral sclerosis, Multiple sclerosis

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