

Poster Presentations

► Poster Presentation 1

The Effect of the Antioxidant Neochlorogenic Acid on Oxidative Stress-Induced Skeletal Muscle Atrophy

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ABSTRACT

This study aimed to evaluate the protective effects of neochlorogenic acid (3-CQA) in an in vitro model of oxidative stress-induced skeletal muscle atrophy, through cell viability, myotube morphology, and the expression of muscle atrophy-related genes [1, 2, 3].

The cytotoxicity of 3-CQA was determined in C2C12 myoblasts across a concentration range of 0–200 μ M using the MTT assay. To establish the atrophy model, C2C12 myotubes were treated with 300 μ M H₂O₂ 48 hours after the onset of differentiation; the treatment group received 20 μ M 3-CQA simultaneously. Myotube formation and cellular morphology were assessed microscopically, and the expression of MAFbx and MuRF1, markers of ubiquitin-proteasome system-mediated atrophy, was analyzed by qRT-PCR [4].

Cell viability decreased in a dose-dependent manner at 3-CQA concentrations above 50 μ M, and the IC₅₀ value was determined as 84.14 μ M. Therefore, the non-cytotoxic concentration of 20 μ M was used in subsequent experiments. H₂O₂ treatment markedly reduced myotube formation and caused deterioration of cellular morphology; in contrast, myotube structure was partially preserved in the group treated with H₂O₂ together with 3-CQA. H₂O₂ increased MAFbx and MuRF1 expression 1.63- and 1.39-fold, respectively ($p < 0.01$), whereas 3-CQA significantly suppressed this increase, reducing the levels to 1.22 and 0.96 ($p < 0.01$).

These results suggest that 3-CQA contributes to the

preservation of myotube structure under oxidative stress and may exert a potential protective effect against muscle atrophy by suppressing ubiquitin-proteasome system-mediated protein degradation.

Keywords: Neochlorogenic acid, Oxidative stress, Skeletal muscle atrophy, C2C12 myotubes

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► Poster Presentation 2

Perceived Stigma and Quality of Life in Adults with Epilepsy in Southern Kazakhstan

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ABSTRACT

Epilepsy is associated not only with recurrent seizures but also with substantial psychosocial burden, including perceived stigma, which may negatively affect daily functioning and quality of life [1, 2]. Although recent regional studies have begun to characterize quality of life and clinical phenotypes in adults with epilepsy, evidence regarding stigma-related psychosocial outcomes in Kazakhstan and other Central Asian countries remains limited [3, 4]. This study aimed to assess the relationship between perceived stigma and quality of life among adults with epilepsy in Southern Kazakhstan.

A cross-sectional registry-based study was conducted among 1,100 adults with clinically confirmed epilepsy from regional epilepsy registries in Southern Kazakhstan. Data were obtained from medical records and structured interviews. Quality of life was assessed using the Quality of Life in Epilepsy-31 questionnaire (QOLIE-31) and categorized as preserved or reduced. Perceived stigma was evaluated using the Epilepsy Stigma Scale (ESS) and categorized as low, moderate, or high. Socio-demographic and clinical variables, including seizure characteristics, antiseizure medication use, cognitive status, neuroimaging findings, disability, and comorbidities, were also recorded. Group differences were assessed using chi-square and Mann–Whitney U tests. Multivariable logistic regression models were applied to evaluate factors associated with reduced QoL.

Of the 1,100 participants, 419 (38%) had preserved QoL, whereas 681 (62%) had reduced QoL. Perceived stigma showed a strong association with quality-of-life status ($p < 0.001$). High perceived stigma was substantially

more common among patients with reduced QoL than among those with preserved QoL (31% vs. 5%; $p < 0.001$). Conversely, low stigma levels were substantially more common in patients with preserved QoL than in those with reduced QoL (30% vs. 3%). Moderate stigma levels were similarly distributed between groups. As illustrated in Figure 1, stigma distribution differed markedly according to QoL status. In multivariable logistic regression analysis, high perceived stigma remained independently associated with reduced QoL after adjustment for age, sex, seizure severity, and cognitive impairment (OR = 6.72, 95% CI: 4.00–11.29; $p < 0.001$). Reduced QoL was also more frequently observed in patients with cognitive impairment, greater seizure burden, postictal symptoms, structural neuroimaging abnormalities, disability, and lower educational level.

Perceived stigma is strongly associated with reduced QoL among adults with epilepsy in Southern Kazakhstan. These findings highlight the need to incorporate stigma screening, patient education, psychosocial support, and community-level anti-stigma interventions into epilepsy care. Addressing stigma may improve patient-centered outcomes beyond seizure control alone.

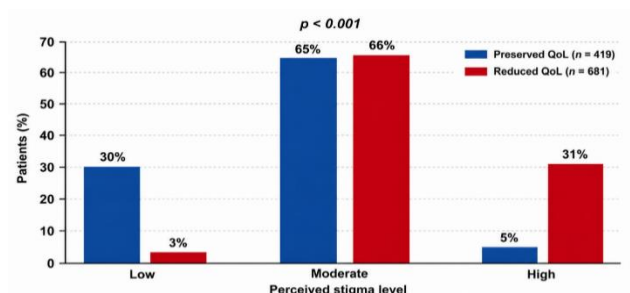


Figure 1. Distribution of perceived stigma levels according to quality-of-life status among adults with epilepsy in Southern Kazakhstan

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Keywords: Epilepsy, Perceived stigma, Quality of life (QoL); QOLIE-31, Psychosocial factors, Kazakhstan.

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