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The effects of combination treatment with PME-88 and Riluzole on the ALS mouse model

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Amyotrophic lateral sclerosis, or ALS, is a critical degenerative neurological disorder caused by the progressive destruction of motor neurons. Approximately 20% of all familial cases of ALS result from a genetic defect on chromosome 21, leading to mutation of the superoxide dismutase 1 (SOD1) enzyme. In this study, we investigated different treatments for ALS on the ALS mouse model and found that the treatment using the combination of PME-88 and Riluzole through oral administration produces a greater effect than the treatment using only Riluzole, which is the only method approved by the FDA. The ALS mouse model was divided into three groups; a PME-88 group that would ingest PME-88(n=8 animals/group), a Riluzole group that would ingest Riluzole (n=11 animals/group), and a combination group that would ingest both PME-88 and Riluzole (n=11 animals/group). We observed and evaluated the effects of the three different treatments on the functional maintenance of motor neurons. Results showed that the combined treatment of Riluzole and PME-88 is most effective to maintain the motor function of motor neurons. We also found that symptoms of ALS appeared at the latest in the combined-treatment group than in the other two groups. However, the differences in the amount of time survived between the three groups were insignificant. In conclusion, we found that combined treatment showed the greatest positive effect on the maintenance of the motor function in the ALS mouse model. We had hypothesized that SOD, the source of PME-88, would increase the treating effect of Riluzole.

Biography

Hyo Joon Kim studied Medicine in Kyoungpook National University and was trained in Neurosurgery in Presbyterian Medical Center. His research is based on Neuroscience study group, Honam Stroke Research Group. His major research subject is increasing disrupted brain function in stroke, traumatic brain injury and ALS disease. Related with ALS, his study started with electrical stimulation on the cortical motor cortex area and tried to extent pharmacological treatment combination.

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