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The Effect of a Megadose of Human Umbilical Cord Blood Mononuclear Cells on Huntington Disease Mice.

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We have demonstrated that the use of a megadose (34.2-35 $\times$ 10^6) of human umbilical cord blood mononuclear cells produced a significant increase in the life span of SOD1 mice. These mice have a mutant human transgene, CuZn super-oxide dismutase, associated with amyotrophic lateral sclerosis. By raising the number of umbilical cord blood cells to 71 to 74 $\times$ 10^6, we were able to further increase the life span of SOD1 mice. Based on these findings, we attempted to determine whether a similar approach could be used in Huntington disease, which has been postulated to have a relationship to amyotrophic lateral sclerosis. The mice [B6CBA-TgN(Hdexonl)62Gpb] have the human Huntington disease transgene that causes a progressive neurologic phenotype in mice.

We divided 24 mice with Huntington disease into 4 groups: (1) control group, 7 untreated mice that developed symptoms when they were 80 days old and died by 92 days (average, 86 days); (2) 5 mice received congenic bone marrow from a wild-type mouse and had a life span similar to control mice; (3) 5 mice, before the onset of symptoms, received 71 to 74 $\times$ 10^6 mononuclear cells, 800 cGy of irradiation, and anti-killer sera and lived an average of 97 days; and (4) 5 animals, after developing neurologic symptoms, were given 800 cGy of irradiation, anti-killer sera, and 71 to 74 $\times$ 10^6 human cord blood mononuclear cells and lived an average of 98 days. One animal, however, lived 115 days. Two animals died within 24 hours of treatment and could not be evaluated,

The present study suggests that human umbilical cord mononuclear cells given in megadose amounts with irradiation can modify Huntington disease in mice.