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Effect of Human Cord Blood Mononuclear Cells on Preclinical Prostate Cancer Mice "Tramp"

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Prostate cancer is almost exclusively a malignancy of men in late adulthood and elderly men. Recently, an animal preclinical model has been developed of this disease. The mouse model "Tramp" [(C57BL/6 TgN) (Tramp) 9247 NG] spontaneously develops cancer that can metastasize and, according to the developers, survives 252 to 280 days and, occasionally, 364 days. There is significant evidence that the human immune system deteriorates with age. The possibility that this deterioration may have a significant role in developing cancer of the prostate has been suggested frequently. Having demonstrated that a chimera can be produced in mice with the use of large doses of human umbilical cord blood (HUCB) mononuclear cells, we attempted to determine the effect of large doses of these cells on this transgenic mouse model of prostate cancer.

Twenty Tramp mice were divided into 2 groups, 10 mice given 200×10^6 HUCB mononuclear cells and 10 control mice. The presence of neoplasm initially was demonstrated by palpation and biopsy. When 4 of the 10 control mice developed a palpable mass, 4 of these animals also received 200×10^6 HUCB mononuclear cells.

Of the 10 mice treated with HUCB, 2 survived for 470 days and were killed. One of these 2 mice had a neoplasm involving the seminal vesicle, and 1 had no evidence of neoplasm. The average life span of the 6 untreated mice was 254 days. The 10 animals treated with HUCB lived an average of 372 days, and 2 animals were living at the termination of the experiments ($P < .001$). The average life span of the 4 animals treated after detection of a palpable mass was 337 days ($P < .05$).

HUCB mononuclear cells had a significant effect on delaying the onset and the growth of prostate cancer, and extending the life of the mice in the preclinical animal mouse model Tramp.