Telomere Length Change in The Cancer Patients Undergone Multiple Chemotherapy Cycles

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Background Telomere length predicts the replicative capacity of cells. It is confirmed that the telomere length of mononuclear cells after autologous hemopoietic stem cell transplantation is shorter than those before transplantation. But the study concerning to telomere length changes in the cancer patients undergone multiple chemotherapy cycles has not been tried, up to now. This study was designed to verify the telomere length changes of mononuclear cells in the cancer patients undergone multiple chemotherapy cycles.

Methods Fifteen patients were enrolled in this study. Telomere length was measured by the method of southern blot hybridization (TeloQuant®). The measurement of telomere length was done before chemotherapy and after every two cycles of chemotherapy. And the hematologic and other toxicities of chemotherapy was evaluated, as well.

Results The mean telomere length was significantly shortened, according to the number of the chemotherapy cycle (p=0.042). And, the extent of telomere shortening revealed the significant positive correlation with the frequency of WHO grade 4 neutropenia (r=0.942, p<0.005). But there was no significant correlation between the telomere shortening and patient’s ages or cancer types.

Conclusion Telomere length was shortened in accordance with the number of chemotherapy cycles. And, the extent of telomere shortening has positive correlation with the frequency of severe neutropenia. So, further studies will be warranted to confirm this result.