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Single and double strand breaks of DNA in peripheral blood lymphocytes of chronically exposed individuals

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Our purpose was investigation DNA single-strand breaks (SSB) and double-strand breaks (DSB) levels in peripheral blood lymphocytes exposed individuals 60 years after exposure.
Two groups of humans was formed: exposed (51 subjects) and non-exposed (24 subjects). In the group of exposed individuals were identified individuals with chronicradiation syndrome (CRS) –8 individuals, and with leucopenia –14 individuals. Groups are similar by age, sexual and ethnic structure.
We used comet assay alkaline and neutral variants. The parameters of assessing the level of DNA breaks were used the percentage of DNA in tail (PDNA) and tail moment (TM).
In peripheral blood lymphocytes of exposed individuals in comparison with non-exposed we detect increase values of parameters of SSB: PDNA 4,55±0,32 % vs 3,11±0,52 % (p=0,025), TM 0,66±0,08 *%mcm vs 0,23±0,06 %*mcm (p=0,001). During comparison non-exposed with subgroups of exposed was received following values of parameters PDNA and TM: in group of exposed with CRS 5,08±0,81% and 0,85±0,21 *%mcm (p=0,06 and p=0,022 resp.), in group of exposed with leucopenia 4,96±0,71% and 0,76±0,16 %*mcm (p=0,046 and p=0,007 resp.), in group of exposed without CRS and leucopenia 4,18±0,38% and 0,55±0,11 *%mcm (p=0,022 for TM).*
*In peripheral blood lymphocytes of exposed individuals in comparison with control we detect increase values of parameters of DSB: PDNA 13,67±0,56 vs 10,30±0,70 % (p=0,001), TM 2,94±0,28 %*mcm vs 1,91±0,26 *%mcm (p=0,001). During comparison non-exposed with subgroups of exposed was received following values of parameters PDNA and TM: in group of exposed with CRS 15,67±1,01 and 3,81±0,75 %*mcm (p=0,001 and p=0,041 resp.), in group of exposed with leucopenia 13,36±0,93 % and 3,06±0,38 *%mcm (p=0,014 and p=0,021 resp.), in group of exposed without CRS and leucopenia 13,27±0,83 % u 2,64±0,40 %*mcm (p=0,01 for PDNA).
Thus for peripheral blood lymphocytes of chronically exposed individuals increase DNA SSB and DSB level is character. Most differences were detected for exposed individuals with CRS and leucopenia.

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