Article: 1328
Topic: 42 - Cognitive Neuroscience

POSTRADIATION INTELLIGENCE IMPAIRMENT

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Background: Cognitive impairment in the remote period of Acute Radiation Sickness (ARS) is an expected outcome.
Aim: This study was undertaking to examine the contribution of irradiation on the intelligence deterioration.
Methods: In 14-15 years after the Chernobyl accident a cross-sectional IQ-study on ARS-patients (n=29) and normal controls (n=24) was done. Verbal (VIQ), Performance (PIQ) and Full (FIQ) IQs were assessed by adapted version of the Wechsler Adult Intelligence Scale (WAIS). Pre-exposure IQ was estimated with the regression equation by Dr. Beilin Gao (China).
Results: VIQ and FIQ is lower in ARS-patients. Dose of 1 Gy could be realized in FIQ deterioration on 4.1-6 scores at 1-3.8 Gy. FIQ reducing on 1 score could be resulted by 0.17-0.24 Gy. According to pre-exposure IQ estimations, IQ deterioration in ARS-patients is in 2-3 times much more than in control. In ARS-patients this IQ deterioration is significant (more than SD). Non-radiation confounding factors are analyzed.
Conclusions: Refusal of alternative explanations of the cognitive deficit among ARS-patients could testify to radiation nature of this effect. Reducing of VIQ and FIQ are the evidence of brain organic syndrome with paramount involvement of the left, dominating, hemisphere in the remote period of ARS.

https://doi.org/10.1016/S0924-9338(13)76380-6 Published online by Cambridge University Press