



CLINICAL-EPIDEMIOLOGICAL NEUROPSYCHIATRIC STUDY OF CHORNOBYL LIQUIDATORS

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Background: Experts of UN Chernobyl Forum recognized the long-term mental consequences as the major social and medical burden of the catastrophe. There are data on increased morbidity and mortality from cardiovascular and cerebrovascular pathology in the dose-effect manner.

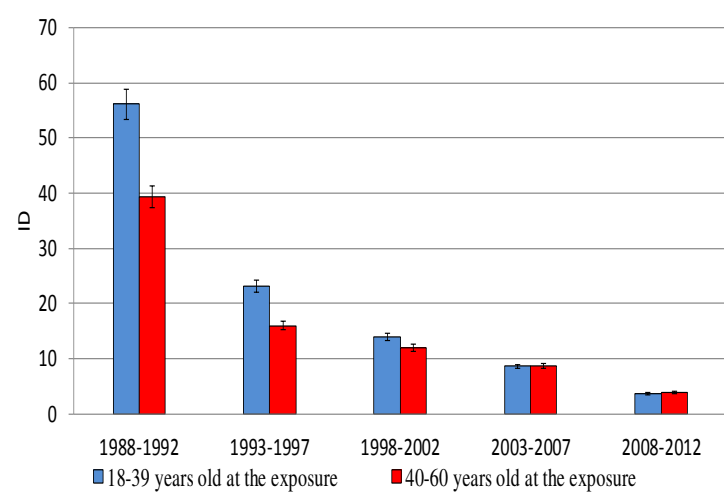
Goal: to conduct the risk-analysis of the neuropsychiatric pathology in clean-up workers (liquidators) of the Chernobyl catastrophe (April 26, 1986).

Subjects and Methods: Liquidators from the State Register of Ukraine with radiation doses records (n=68,145) and Clinical-Epidemiological Register of the NRCRM (n=3,548). Clinical verification of neuropsychiatric diseases, epidemiological methods, risk-analysis.

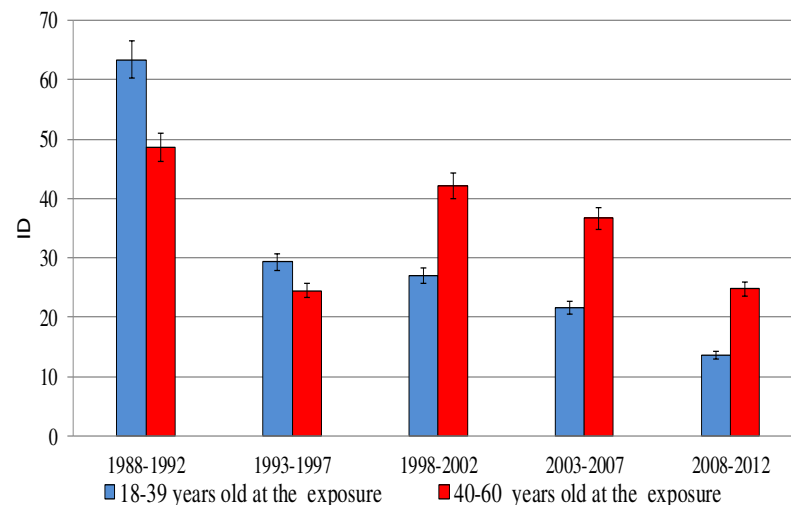
Results: Excess of the incidence of acute cerebrovascular and organic mental disorders was found: organic psychosis (ICD-9: 293.0-294.9), (RR: 3.15, 95% CI 2.6-3.7); non-psychotic organic brain damage (ICD-9: 310.0-310.9; ICD-10: F07.0-F07.9), (RR: 1.99, 95% CI 1.6-2.5); acute cerebrovascular disorders (ICD-9: 430.0-436.9; ICD-10: I60.0-I66.0), (RR: 1.40, 95% CI 1.3-1.5), consequences of cerebrovascular disorders (ICD-9: 438.0-439.9; ICD-10: I69.0-I69.8), (RR: 1.23, 95% CI 1.0-1.5). Significant radiation risks of morbidity and mortality due to acute and chronic cerebrovascular disorders in liquidators exposed at the age <40 years and at the dose range >0.25 Gy (0.25-0.7 Gy) were revealed.

Disease	RR (95 % CI)
Organic psychosis (ICD-9: 293.0-294.9)	3.15 (2.6;3.7)
Non-psychotic organic brain damage (ICD-9: 310.0-310.9; ICD-10: F07.0-F07.9)	1.99 (1.6;2.5)
Acute cerebrovascular disorders (ICD-9: 430.0-436.9; ICD-10: I60.0-I66.0)	1.40 (1.3;1.5)
Consequences of cerebrovascular disorders (ICD-9: 438.0-439.9; ICD-10: I69.0-I69.8)	1.23 (1.0;1.5)

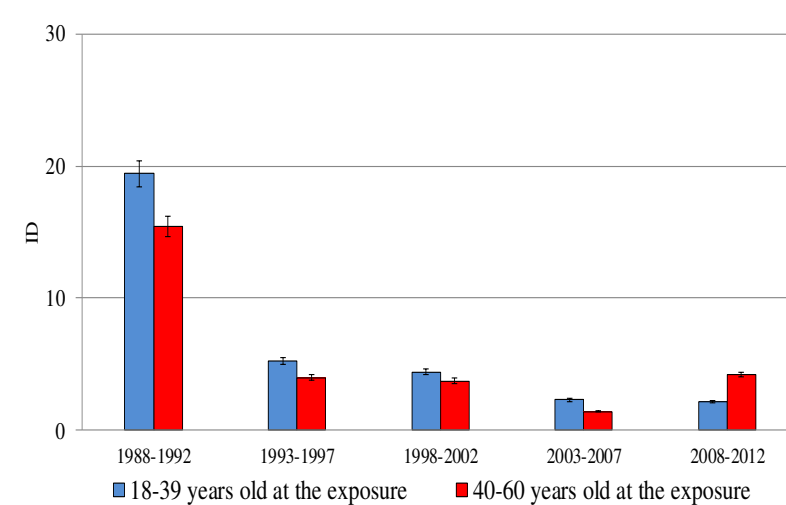
Incidence of neuropsychiatric disorders in cleanup workers 1986-1987 depending on age at the time of exposure



Autonomous nervous system disorders (Dysautonomia) (ICD-10:G90.0-G90.9)

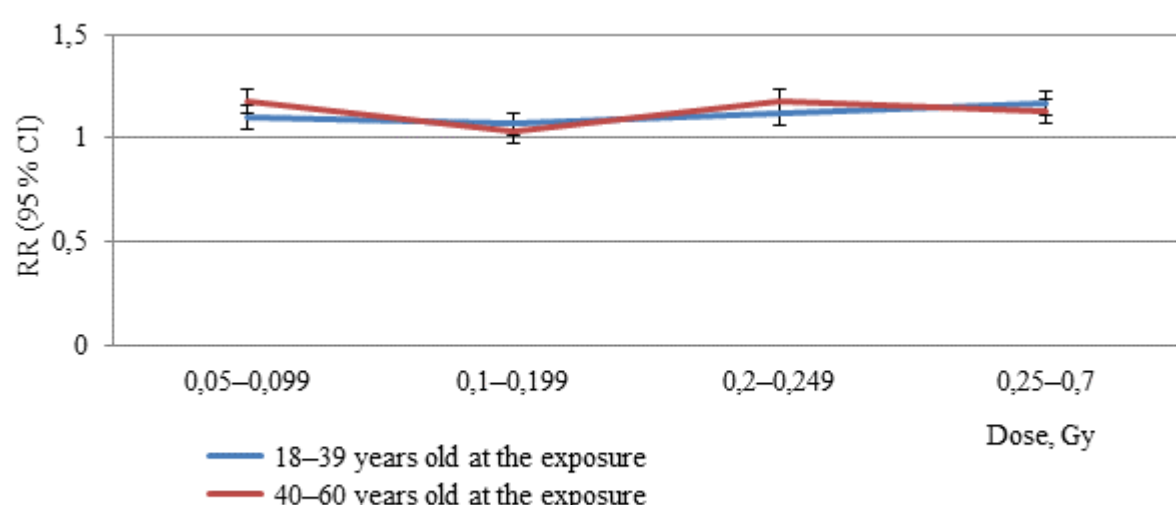


Nervous system diseases (ICD-9: 320.0-359.9, ICD-10: G00-G99)

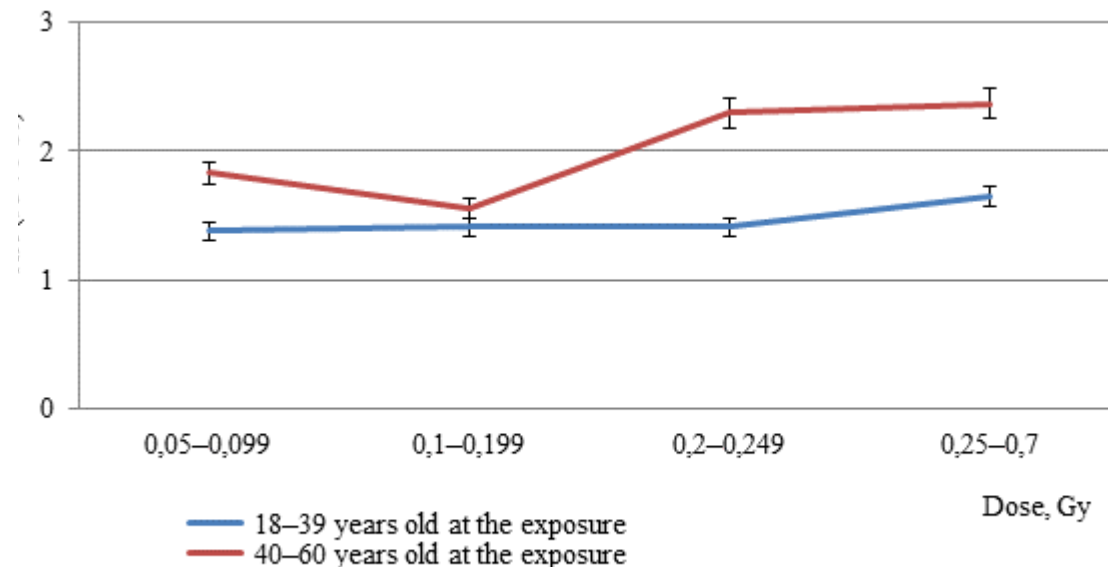


Mental and behavioral disorders (ICD-9: 290-319, ICD-10: F00-F99)

Relative Risks (RR) and 95% Confidential Intervals (CI) in cleanup workers 1986-1987 depending on the external radiation dose and age at the time of exposure. Period – 1988-2021, control-exposed <0,05 Gy



Autonomous nervous system disorders (Dysautonomia) (ICD-10:G90.0-G90.9)



Mental and behavioral disorders (ICD-9: 290-319, ICD-10: F00-F99)

Conclusions: There are consequent epidemiological evidences on radiation cerebral effect as organic brain damage in liquidators, as well as acute and chronic cerebrovascular pathology.