Journal of Environmental and Occupational Science
www.jenvos.com
DOI: 10.5455/jeos.20161012095029

Corrigendum

Corrigendum: Hypothesis: overestimation of Chernobyl consequences.

In: Jargin SV. Journal of Environmental and Occupational Science 2016;5(3):59-63.

The whole text of the above-named article is correct. However, the references in the last 2 paragraphs of the article body and the Conclusion section have been partly confused, beginning from the Ref. # 40. This is entirely the author's fault because he did not properly check the references. The author is asking to accept his sincere apologies. Here follows the final part of the article body and the Conclusion followed by the corrected references.

However, epidemiological studies of low-dose radiation effects in humans may be prone to biases, for example, dose-dependent selection or self-selection noticed by some researchers [37-39]; higher participation rates of cases (cancer patients) compared to controls [40-42]; better recollection by cases of the facts related to radiation exposure (recall bias) [40] may be conductive to the overestimation of doses in the cases. Several international epidemiological studies [41-43] have been commented previously [29].

Selection and self-selection bias is a potentially serious problem of the epidemiological research [44,45]; it is known from studies on the low frequency magnetic fields (electromagnetic waves), where, analogously to low-dose low-rate ionizing radiation, there is some epidemiological association with cancer but neither supporting laboratory evidence nor biophysical plausibility [45,46]. In both cases the association may be not casual. In populations exposed to ionizing radiation, the self-selection bias must be stronger than for the magnetic fields because carcinogenicity of the former is known. People knowing their higher doses would probably come to medical examinations more frequently being given averagely more attention. The dose-response relationships at low doses can be clarified in large-scale animal experiments.

Conclusion

According to UNSCEAR, with the exception of the increased risk of thyroid cancer in people exposed at young ages, no somatic disorder or immunological defects could be associated with ionizing radiation caused by the Chernobyl accident [8]. Some data in favor of increased leukemia incidence in cleanup workers (liquidators) were reported [38,47]; however, significance of these data has been questioned [48]. No reliably proven increase in birth defects, congenital malformations, stillbirths, or premature births could be linked to radiation exposures caused by the accident [8,36]. Undoubtedly, the accident caused major psycho-social and economic damage [49-51]. Psychosocial factors probably explain some differences between the exposed and non-exposed groups [8]; being, however, unrelated to the biological effects of ionizing radiation.

The above and previously published [5,11,19,52,53] arguments question the cause-effect relationship between the radiation exposure and cancer incidence increase after the Chernobyl accident. With regard to Chernobyl-related pediatric TC, this cause-effect relationship cannot be excluded, but the registered increase can be largely attributed to factors other than radiation. In conclusion, the exaggeration of Chernobyl consequences may lead to the overestimation of carcinogenicity of certain radionuclides. Moreover, the exaggeration of the detrimental effects of low-dose low-rate radiation exposure on physical health may unnecessarily cause stress and anxiety among those who had been most heavily affected psychologically, socially and economically: liquidators - the heroes who risked their lives, and the residents, raided from their land, work, and homestead [51].

REFERENCES

37. McGeoghegan D, Binks K, Gillies M, Jones S, Whaley S (2008) The noncancer mortality experience of male workers at British Nuclear Fuels plc, 1946-2005. Int J Epidemiol 37: 506-518.
38. Zablotska LB, Bazyka D, Lubin JH, Gudzenko N, Little MP, et al. (2013) Radiation and the risk of chronic lymphocytic and other leukemias among chornobyl cleanup workers. Environ Health Perspect 121: 59-65.
39. Watanabe T, Miyao M, Honda R, Yamada Y (2008) Hiroshima survivors exposed to very low doses of A-bomb primary radiation showed a high risk for cancers. Environ Health Prev Med 13: 264-270.
40. Kesminiene A, Evrard AS, Ivanov VK, Malakhova IV, Kurtinaitis J, A, et al. (2008) Risk of hematological malignancies among Chernobyl liquidators. Radiat Res 170: 721-735.
41. Cardis E, Kesminiene A, Ivanov V, Malakhova I, Shibata Y, et al. (2005) Risk of thyroid cancer after exposure to 131I in childhood. J Natl Cancer Inst 97: 724-732.
42. Davis S, Stepanenko V, Rivkind N, Kopecky KJ, Voillequé P, et al. (2004) Risk of thyroid cancer in the Bryansk Oblast of

the Russian Federation after the Chernobyl Power Station accident. Radiat Res 162: 241-248.
43. Tronko MD, Howe GR, Bogdanova TI, Bouville AC, Epstein OV, et al. (2006) A cohort study of thyroid cancer and other thyroid diseases after the Chornobyl accident: thyroid cancer in Ukraine detected during first screening. J Natl Cancer Inst 98: 897-903.
44. Lilienfeld AM (1983) Practical limitations of epidemiologic methods. Environ Health Perspect 52: 3-8.
45. Mezei G, Kheifets L (2006) Selection bias and its implications for case-control studies: a case study of magnetic field exposure and childhood leukaemia. Int J Epidemiol 35: 397-406.
45. Kabuto M, Nitta H, Yamamoto S, Yamaguchi N, Akiba S, , et al. (2006) Childhood leukemia and magnetic fields in Japan: a case-control study of childhood leukemia and residential power-frequency magnetic fields in Japan. Int J Cancer 119: 643-650.
46. Li CY, Thériault G, Lin RS (1996) Epidemiological appraisal of studies of residential exposure to power frequency magnetic fields and adult cancers. Occup Environ Med 53: 505-510.
47. Ivanov VK, Tsyb AF, Khait SE, Kashcheev VV, Chekin SY, et al. (2012) Leukemia incidence in the Russian cohort of Chernobyl emergency workers. Radiat Environ Biophys 51(2):143-149.
48. Jargin SV. On the radiation-leukemia dose-response relationship among recovery workers after the chernobyl accident. Dose Response. 2013;12(1):162-5.
49. Havenaar J, Cwikel J, Bromet EJ. Toxic turmoil: psychological and societal consequences of ecological disasters. Kluwer Academic / Plenum Publishers, New York, 2002.
50. Havenaar JM, Bromet EJ, Gluzman S. The 30-year mental health legacy of the Chernobyl disaster. World Psychiatry 2016;15(2):181-2.
51. Coulmas F, Stalpers J. Fukushima. Vom Erdbeben zur atomaren Katastrophe. Verlag C.H. Beck, München, 2011.
52. Jargin SV. Dose and dose-rate effectiveness of radiation: first objectivity then conclusions. J Environ Occup Sci. 2016; 5(1): 25-29.
53. Jargin SV. Thyroid cancer after Chernobyl: mechanisms of overestimation. Radiat Environ Biophys 2011;50(4):603-4.

Sergei V. Jargin
Peoples' Friendship University of Russia

Address for correspondence:
Sergei V. Jargin, Peoples' Friendship University of Russia
sjargin@mail.ru

Keywords:
Chernobyl nuclear accident; ionizing radiation; thyroid cancer

Received: September 07, 2016
Accepted: September 28, 2016
Published: October 12, 2016

Source of Support: Nil, Confl ict of Interest: None declared