

## Update of Findings about Radiation-induced Chronic Lymphocytic Leukemia

Inge Schmitz-Feuerhake

**Table 1 Findings about radiation-induced CLL**

Exposed cohort and reference	
<b>Hiroshima/Nagasaki, NIC group</b> Ichimaru et al. 1977	<b>Size of collective 26,508</b> <b>Obs./Exp. = 28/19 RR=1.5</b>
<b>5 Nuclear Facilities USA</b> Schubauer-Berigan et al. 2007	<b>94,500 occupied persons case-control study</b> <b>43 CLL deaths ERR=20 per Sv</b>
<b>Liquidators Chernobyl</b> Gluzman 2006 Abramenko et al. 2007 Kesminiene et al. 2008 Romanenko et al. 2008 Gluzman this conference	<b>„CLL most frequent form of leukemia in clean-up workers“</b> <b>ERR=4.7 per Gy (Median dose 13 mGy)*</b> <b>ERR=4.1 per Gy (Mean dose 76 mGy)*</b>
<b>Uranium miners Czech Republic</b> Rericha et al. 2006	<b>Size of collective 23,043</b> <b>Obs./Exp. = 42/21.2 RR=2.0</b>
<b>Uranium miners Germany</b> Möhner et al. 2010	<b>Case-control study, cases 377</b> <b>RR=2.0 per Gy*</b>

\*) Bone marrow dose

“Tracheobronchial lymph nodes tend to be the site of greatest concentration for inhaled uranium and thorium” (Archer et al. 1973)

Shown by autopsy in men:

Goldin et al.: Thorotrast patients. Health Physics 22 (1972)471

Mausner: Inhalation exposures thorium refinery. Health Physics 42(1982)231

Keane, Polednak: Uranium in the chest. Health Physics 44 (1983)391

Singh et al.: U and Th in miners & millers. Health Physics 53 (1987)261

Several experimental studies e.g.

Mitchel, R.E. et al.: Inhaled uranium ore dust and lung cancer risk in rats. Health Physics 76 (1999) 145-155

Experiments in rats, inhalation of natural uranium ore dust, after 400 days accumulation of uranium in bronchial lymph nodes was up to 100-fold higher than in the lung tissue.

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Möhner, M., Gellissen J., Marsh, J.W., Gregoratto, D.: Occupational and diagnostic exposure to ionizing radiation and leukemia risk among German uranium miners. *Health Phys.* 99 (2010) 314-321

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