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Comments on Uranium Content Anomalies in Groundwaters of Fazilka District of Punjab (India) for the Assessment of Excess Cancer Risk

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In a recent article in "*Research & Reviews: Journal of Oncology and Hematology*", Prof. Virk has evaluated radiological risk due to uranium content present in the groundwater of Fazilka district for the Malwa belt of Punjab, India [1]. As per the report, the uranium content of water samples of the studied villages varied from 121.95–366.00 ppb (μgl^{-1}) with an average value of 198.198 ppb (μgl^{-1}) [1]. The excess cancer risk varied from (3.45–10.37) $x10^{-4}$ with a mean value of 5.01×10^{-4} and works out to be 5 per 10,000 people or 500 per million [1].

In this regard, the author would like to add that the typical lifetime dose associated with average uranium concentration of ~200 ppb is negligible. Even for high background radiation areas (doses upto ~70 mGy/year), the studies did not reveal any excess cancer risk [2]. The author would further like to stress that it is inappropriate to estimate the number of cancer cases at such dose values using ICRP's adopted risk factor of 5 %/Sv or any other methodology especially for low dose values [3, 4]. This is in line with the ICRP as well as UNSCEAR report where it is categorically mentioned that the aggregation of very low individual doses over extended time periods is inappropriate for use in risk calculations and projections [5, 6]. In view of above, the researchers should avoid performing any risk calculation or predicting (hypothetical) number of cancer cases, as the number predicted is not of any use and against the philosophy as well as guidelines of the ICRP. The projection of such hypothetical cancer numbers unnecessarily scare public.

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