IDENTIFYING RADIATION INDUCED THYROID CANCER

It is a truth that every disaster harbors seeds of new learning. The Chernobyl disaster is a case in point. After a chain reaction in the nuclear plant blew off the reactors lid in 1986, huge amounts of radioactive materials were released into the atmosphere. These materials were deposited mainly over countries in Europe, but especially Belarus, the Russian Federation and Ukraine. Radioactive iodine was deposited in pastures eaten by cows who then concentrated it in their milk which was subsequently drunk by children. A general iodine deficiency in the area exacerbated radioactive iodine accumulation in the thyroid. Since radioactive iodine is short lived, if people had stopped giving locally supplied contaminated milk to children for a few months following the accident, it is likely that most of the increase in radiation-induced thyroid cancer would not have resulted. In Belarus, the Russian Federation and Ukraine nearly 5 000 cases of thyroid cancer have now been diagnosed to date among children who were aged up to 18 years at the time of the accident.

Now breakthrough research from Germany has identified a unique genetic signature of radiation induced papillary carcinoma. Scientists from the Radiation Cytogenetics Unit of the Helmholtz Zentrums München, in collaboration with the Imperial College London, studied the carefully stored samples of thyroid cancers from children exposed to the radioiodine fallout from the Chernobyl nuclear reactor explosion. The team compared the genetic information from these tumors to that found in the same type of tumor that arose in children born more than one year after the explosion, after the radioactive iodine had decayed away. The number of copies of a small fragment of chromosome 7 (band 7q11) was found to be increased only in the tumors from the irradiated children, establishing this as one of the first genetic markers that indicate a radiation etiology of cancer.

It is commendable that thyroid cancers will probably not happen in Fukushima, Japan because as per emergency plan, people were promptly evacuated and supplied stable iodine (*The Hindu 16 June 2011, www.who.int/ mediacentre/factsheets/fs303/en/index.html*).

INDIA'S IMPROVING STATISTICS

Statistics is the grammar of science, and health statistics the barometer of social and human development. The latest statistics of the Sample Registration System (SRS) was recently released by C Chandramouli, the Registrar General of India and Census Commissioner. The SRS is the largest demographic survey in the country covering about 1.4 million households and 7.01 million populations in 7597 sample units across 35 States/UTs.

The National Infant Mortality Rate (IMR) has declined 3 points from 53 in 2008 to 50. Madhya Pradesh is last on the scoreboard with an IMR of 67 while Kerala with 12, Tamil Nadu 28, Maharashtra 31, Delhi 33 and West Bengal 33 are at or almost at the Millennium Development Goal (MDG) of 28 by 2015.

The Under 5 Mortality Rate (U5MR) has also declined 5 points from 69 in 2008 to 64. Again Madhya Pradesh has the worst numbers (89) while Kerala (14), Tamil Nadu (33), Maharashtra (36), Delhi (37) and West Bengal (40) have already achieved the MDG target (42 by 2015).

The Maternal Mortality Rate (MMR) has shown an impressive fall form 254 (2004-2006) to 212 (2007-2009).The worst performers UP, Madhya Pradesh, Bihar (which have been clubbed together as the Empowered Action Group) and Assam have also shown a 18% decline from 375 to 308. Kerala with an MMR of 81, Tamil Nadu (97) and Maharashtra (104) have attained the MDG of 109 by 2015.

The only statistic to show no change has been the total fertility rate (average number of children born to a woman) which remains unchanged at 2.6 (*The Hindu 8 July 2011, w ww.censusindia.gov.in/vital_ statistics/SRS_Bulletins/ MMR_release_070711.pdf*)

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