

Anti-radiation pills

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In news— Amidst Russia-Ukraine war and growing fear of nuclear disaster, the European Union has decided to supply anti-radiation pills to Zaporizhzhia power plant region in Ukraine.

What are anti-radiation pills?

- **Potassium iodide (KI) tablets, or anti-radiation pills,** are known to provide some protection in cases of radiation exposure.
- They **contain non-radioactive iodine** and can help block absorption, and subsequent concentration, of radioactive iodine in the thyroid gland.
- **These pills do not provide 100% protection. The effectiveness of KI also depends on how much radioactive iodine gets into the body** and how quickly it is absorbed in the body.
- Also, the pills are not meant for everybody. They are recommended for people under 40 years of age. Pregnant and breastfeeding women are also advised to take them.
- While it can protect the thyroid against radioactive iodine, it cannot protect other organs against radiation contamination.

How do these pills work?

- **After a radiation leak, radioactive iodine floats through the air and then contaminates food,** water and soil.
- While radioactive iodine deposited during external exposure can be removed using warm water and soap, the bigger risk is inhaling it.
- Internal exposure, or irradiation, occurs when radioactive iodine enters the body and accumulates in the thyroid gland.
- The thyroid gland, which uses iodine to produce hormones

to regulate the body's metabolism, has no way of telling radioactive from non-radioactive iodine.

- Potassium iodide (KI) tablets rely on this to achieve 'thyroid blocking'.
- **KI pills taken a few hours before or soon after radiation exposure ensure that non-radioactive iodine in the medicine is absorbed quickly** to make the thyroid "full".
- Because KI contains so much non-radioactive iodine, the thyroid becomes full and cannot absorb any more iodine – either stable or radioactive – for the next 24 hours.
- **But KI pills are preventive only and cannot reverse any damage done by radiation** to the thyroid gland.
- **Once thyroid gland absorbs radioactive iodine, those exposed are at a high risk of developing thyroid cancer.**

What is radiation emergency?

- These **are unplanned or accidental events that create radio-nuclear hazard to humans and the environment.**
- Such situations involve radiation exposure from a radioactive source and require prompt intervention to mitigate the threat.
- Dealing with such an emergency also involves the use of anti-radiation tablets.