

ARE THE LOW DOSES TOO MUCH WEIGHTED-UP IN THE MEDICAL FIELD?

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RESUME

The workers of an area located under an hospital X Ray Service feel some alarm, because the perception of an excessive number of breast Ca. appeared in a few years. An investigation is promoted co-ordinated by the Medical Director and with the (among others) Labour Risk Prevention and Radiation Protection services participation.

A first dosimetric report is given by the Radiation Protection Service (RPS) on the basis of years before (but not recent) measures, indicating that the values are in the random of non exposed dosimeter statistics. The Labour Risk Prevention Service (LRPS) investigates the rest of environmental agents and clinical factors.

Obviously an actual and conclusive Report is needed, as soon as possible, to all levels, because the workers demand to close the area, under the leadership of the last woman affected partner, expert in building construction and worry about lead without, thinking too much in the ceiling structure.

Elaborating a Report in that circumstances is, on the feeling of the experts responsible a matter of accuracy but, in the particular social context, to be quickly may be prevalent (“no information in time may neutralise another sensationalist”⁽¹⁾).

The RPS starts the measures with a solid state (EPD, SIEMENS) dosimeter verified against a detector calibrated by an official laboratory of metrology. Large number of background measurements in different areas of the hospital are available by this method. The direct Hp and Hs, reading can be shown to the workers any time. The system is choose thinking in a good quickness/confidence relationship. The explanation that the measured values correspond to the natural background is not enough. The same dosimeter is given to a worker to make a measure in home, but one very different detector response when a call is received in a Mobil phone placed very near, built-up confusion.

We know then that this kind of dosimeter, with CE Certificate and approved for use to the Nuclear Power Stations, when we bought it, was sensible to non ionizing radiation among other agents.

In the middle of hurry, the RPS suggests to locate a few TLD area dosimeters provided by a well known, accredited Organism. The aim is to get an idea about the radiation level measured in the minimum time possible to get some confidence. Eight units are met,

five in the specific area and three in other points not exposed by artificial sources (Medical director was one of them.).

The Health and Security Committee are well informed about the state of the investigation by the RPS and the LRPS.

The RPS gives talk, making emphasis on natural background variations, on the line of the NRPB ⁽²⁾. The talk is interrupted in the middle, by the Medical Director that needs to give any other information and get out soon. The ambience is heated and it is impossible to continue talking about low radiation dose afterwards in a logic Way. Simultaneously, the results of ambient TLD readings, sent via email are shown and explained to the assistants (nor really in audience mode), among them, the familiar said before is present.

Two days after, one of the most read newspaper of the country gives an extensive new related to the subject, that is continued a day after: The new is reported by all the communication channels under the style: "Good news are often **no news**"⁽¹⁾.

The two or three days after, as it can imagine, can not be considered as a **normal time**, for the RPS and LRPS, that tried to insert the expert language into a melange of lies and truth charged of sensationalism.

In a short time there is need to prepare the press release (with the Hospital Press Department), to attend the Regulatory Organism, to inform to the Security and Health Committee, all Trade Union representatives included, who ask for all the administrative aspects related to the RX legislation besides the real relevant and specific ones and made a complaint for do not being present during the Regulatory Organism Inspection that fortunately was all right.

The New.

Something to note about this:

Looking for drama, the % de Ca. and the number of RX. equipment is enlarged. On make comparison with a "similar" case in other hospital. On consider the TLD area external dosimeters use, as an evidence that the Hospital Director don't trust in the security. On affirm, without shades, that **all** radiation produces cancer, and so on.

The second day the head line was: "Radiation upper the regulations" followed by "The menace is called microsievvert."

Something to emphasise, is the wrong analysis made by an ecologist, member of a famous NGO and taken as a real "expert", over the ambient TLDs readings that he compared with the limit of 1 mSv without subtracting natural background.

Another affirmation of the same "expert" is that radiation can goes trough thick concrete walls if there are not lead.

A thing is truth, the ambient TLD needed to remain a longer time to get a good measure. In the RPS report, those readings was taken as provisional in order to have a quick reference to contrast their own measures.

The ambient TLDs readings, were provided to the ecologist by the partner of the worker said before, that assisted to the RPS talk.

¿Answering the news?

The RPS (and other), wanted to answer to the journal, but other experts criteria (with more experience in this kind of events) was clearly “better no”. Their recommendations was:

- To give all the relevant information to : Medical Director, RLPS, Security & Health Committee and the workers or patient worried.
- Make a report as complete a possible, and keep all relevant registers.
- Continuing all kind of relevant measures.

More dosimetry

A RPS member, gave a normal TLD personnel dosimeter to a worker of the affected area that was used 15 days.

The S&H Committee decides to give this kind of doseimeters to all workers of the Service (working on the studied area, an others not far away).

The SPR advises that this system, approved by the Regulatory Organism and good enough to measure “Exposed Workers” can be have any confidence problem in order to explain very low doses. A rather significant number of doseimeters not exposed and kept 1 month on the hospital, may give lectures of 0,1 mSv because their own LID and the fact that the background assigned to the Lecture Centre (value really substracted) than the Hospital Background .This not represents a real technical problem, (except for pregnant workers), but may be something not easy to explain to the public or non exposed workers.

Patients and workers comment.

The following resume is made:

- Alarm among some radiotherapy patients in treatment.
- Resistance among ICU workers to get there an RX Mobil equipment.
- Some people be afraid in others areas near to RX.
- The Medical Doctors going to start training period families call to the X-ray Service Chie worried about risks.

- Some problem is observed in an new digital RX area with technicians that met very sensitive image detectors besides of the lead window.
- Some RX technicians do not understand why workers limits are higher than public limits (fact not justified, otherwise, by the ICRP-60⁽³⁾).

GENERAL REMARKS

The event analysed tell us the need to improve the connection between experts and public. The image of those is poor.

Prêtre⁽⁴⁾ talks about the need of “integrating societal aspects into radiation protection decisions or integrating radiation protection into societal decisions”. To integrate RP in modern society it is necessary and the way for that is “Listen to the stakeholders”.

The ionizing radiation is perceived among the public, with the archaic strong symbols weight.

The EU-Commission white book, shows that “there are 100.000 potentially toxic chemical substances for which the toxicity is unknown, many of them might have a dose versus effect relationship of the LNT type, like ionizing radiation. The people starts to realize that as a consequence, the radioactivity may be secularised and the RP will be less interesting but more common and coherent.

To Earle⁽⁴⁾, the risk judgement of public differs from that of the experts. The public use qualitative attributes and the expert qualitative values. “Instead of teaching the public to understand to the experts, experts should be trained to understand the public and his concerns”.

The L-N-T is a topic under debate⁽⁵⁾ : “There will always be some doses below which the risks are not statistically distinguishable from the background.

The radiation in considered in the actuality as one of the Ca agents more well known⁽³⁾.

Observing the latest findings from de atomic bomb survivors, Hall⁽⁶⁾, talks about a linear and linear-quadratic-relationship for solid tumours and leukaemia respectively. “Increased risks are detected to doses below 100 mSv but a threshold of 60 mSv cannot be excluded.

In the same Document, Muirhead stated, with reference a UNSCEAR 2000, that the A bomb survivors data appear now to be inconsistent with dose-threshold above 60 mSv: Furthermore, these data are consistent LNT for Ca risks to low dose

A revision of the RP system, started by Clarke and taken in consideration for ICRP⁽⁷⁾, is going to be on for 2005 and we hope that the coherence will be increased and we will understand easily how to manage (experts and public) with low doses in the practice.

CONCLUSIONS

- The event related here is a good lesson for the RPS and his need to communicate with people and Media.
- There must be a good relationship between the RPS, and the RPLS and the S& H Committee.
- The system of RP and dosimetry must be very rigorous and documented (do not forget written reports and records).
- It is necessary to listen to the questions and feelings of the exposed and not exposed workers, patient and public and try to explain to be understood.
- Low doses must be not magnified over other agents. The work with radiation to this stage will be easy. There must not be a primacy of radiation workers against the others.

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