Radiation Protection / Medical Aspects of the Goiania Accident Individual Monitoring

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In September 1987, the rotating assembly of the shielding head of a Teletherapy unit was removed and the capsule containing 50.9 TBq of ^{137}Cs was dismantled resulting in the widespread contamination of the central Goiania city. This accident resulted in the external and internal exposure of several people, of both genders and of ages ranging from newborn to 73 years old. Sixteen days elapsed between the breaching of the source and the discovery of the accident During this time, children and adults suffered whole body irradiation and became internally contaminated from eating with contamination hands and from contaminated utensils.

People who had handled the source, who lived in houses adjacents to the contaminated sites, or who had some type of contact with the victims were referred to the stadium for monitoring. The first screening contamination was done using a Geiger-Muller detector About 110,000 persons were monitored and 249 had internal and/or external contamination Urine samples were collected to select the people internally contaminated and to evaluate the ^{137}Cs intake and the radiation dose Blood samples were also collected for dose assessment through cytogenetic technique. A total of 20 persons were hospitalized The most seriously injured patients, 14 individuals, were transferred to a hospital in Rio de Janeiro Patients requiring less intensive care, 6 individuals, were admitted to the Goiânia General Hospital. People presenting only slight internal and external contamination, and individuals who had their homes sealed off, were referred to the Institute for Protection of Minors.

During the first two months urine and feces analysis was used to evaluate the ^{137}Cs internal contamination and the efficacy of PB on ^{137}Cs decorporation Goiania is located far from any radiation protection center with the capability to perform in vivo measurements and in vitro monitoring was considered the best technique since most of the individuals had external contamination which would interfere with the in vivo monitoring results