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THE EVALUATION OF THE EQUIVALENT OF DOSE HP (10) OF WORKERS OF THE RADIOLOGY AND TOMOGRAPHY SERVICES OF PARAGUAY IN THE CONTEXT OF COVID-19.

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Introduction: In December of 2019 the appearance of a pneumonia of unknown origin was reported in Wuhan, China, the genome analysis showed that it was a new type of coronavirus related to SARS-CoV[1] .Covid-19 first affects the respiratory system, in Paraguay according to the Protocol for the Clinical Management of patients with disease caused by the new coronavirus (COVID-19), a chest radiograph (RT) is used for the diagnosis of mild pneumonia, as well as for the follow-up indicated in case of lack of clinical response and or suspicion of deterioration. Front-line target personnel act in two scenarios, both conventional radiology and tomography play an important role in the diagnosis and treatment of the disease.

This work aims to carry out an analysis of the equivalent of Hp (10) doses of workers in the radiology and tomography area in the context of Covid-19 among the different service provid-ers: public, private, and social securit. The personal dosimetry service in Paraguay is provided exclusively by the Thermolumines-cent Personal Dosimetry Laboratory (LDT). At present, this laboratory serves more than 1,100 occupationally exposed workers, since its inception the laboratory has been strengthened through different national and regional projects of the Interna-tional Atomic Energy Agency

Material and method: The study performs an analysis of 1497 equivalents of Hp (10) doses of users of radiology and tomography services, provided by the only personal dosimetry laboratory in the country.

The LDT external dosimetry laboratory has as material resources: two thermoluminescent readers HARSHAW 4500 and THERMO 4500. Both readers have WinREMS software and are manually operated. Dosimetric cards are available with chips or thermoluminescent crystals of LiF: Mg, Ti (Lithium fluoride with impurities of Magnesium and Titanium. The present work has a quantitative approach with a descriptive scope. The primary data collec-tions came from the dosimetry reports carried out in a previously defined period of time from Janu-ary 2019 to December 2020, it was retrospective in nature. Statistical tools were used to represent the data and the percentages. The annual average doses were analyzed, the maximum annual dose received by practice and type of sector to which they belong (public, private and social security), the percentage of Occupationally Exposed Workers (TOEs) whose measured and evaluated doses pre-sent values higher than the detection limit during the years 2019 and 2020.

Results: Of the total TOEs of the services under study, 88.3% correspond to the radiology service, in which an increase was observed in the number of TOEs that exceeded the detection limit compared to 2019.

An increase in the average dose of workers in the radiology area is observed in the private and public sectors especially in the latter, where the increase is 44.6% compared to 2019 (Figure 1).

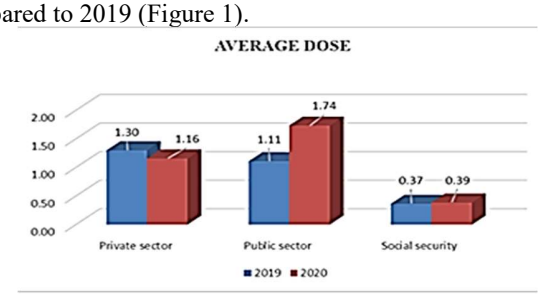

Figure 1: Distribution of average dose by sectors.

Conclusions: The analysis of the above allows us to conclude that the occupationally exposed workers of the radiology and tomography services of Paraguay, presented equivalent levels of Hp (10) dose within the limits established by the National Regulations, but it was evidenced that the increase in patients who used the service could have influenced the increase in the exposure of workers, especially in the public sector and in the radiology area, however this study will allow generating information for subsequent studies, taking into account that in the year of study the number of Covid-19 cases was still on the rise.

References:

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