and energy dispersive X-ray spectroscopy, EDX (the last two using a scanning electron microscope with an energy dispersive X-ray microanalyser Vega 3 SEM, Tescon) techniques. The results proved, basically, that Obsidian is a natural glass and composed mainly of silica (82.4%). The TL glow curve revealed a dosimetric peak at the temperature of 220 °C, and the TSEE emission curve showed a peak at about 300 °C. The results obtained in the reproducibility of response test were: 2.9% (TL), 3.0% (TSEE) and 3.1% (OSL). The lower detection limits were: 48.1 Gy (TL), 18.1 Gy (TSEE) and 79.3 Gy (OSL). The dose-response curves showed, in the case of TL, a supralinearity behavior between only 500 Gy and 2 kGy with a following saturation of the response. For the TSEE response, a sublinearity was seen with a following saturation of the response. For the OSL technique, linearity could be observed in the interval from 500 Gy to 2 kGy and then a tendency to saturation.

Estimative of conversion coefficients for absorbed and effective doses in pediatric CT examinations in two different PET/CT scanners

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The use of computed tomography (CT) in pediatric patients has grown substantially in recent years. As a result, there is an increase to maintain the radiation doses as low as possible, in order to avoid long-term effects, as cancer. In this work, the radiation doses on radiosensitive organs of pediatric patients undergoing head, chest and abdomen CT examinations, utilizing Monte Carlo simulations, were evaluated. In this sense, a new set of pediatric virtual anthropomorphic phantoms with Monte Carlo simulation was employed to determine the conversion coefficients for absorbed and effective doses. Two CT equipment were simulated, taking into account the main characteristics of those commercially available. The F6 tally (MeV/g) was employed to compute the absorbed organ doses. The obtained results were converted to conversion coefficients for all radiosensitive organs, considering all applied beams. The highest conversion coefficients for effective dose were for the newborn virtual anthropomorphic phantom. Therefore, this work provides a useful tool regarding the risks involving ionizing

radiation in pediatric patients, employing a reliable technique.

RELIABILITY OF AN X-RAY SYSTEM FOR CALIBRATING AND TESTING PERSONAL RADIATION DOSIMETERS

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Metrology laboratories are expected to maintain standardized radiation beams and traceable standard dosimeters to provide reliable calibrations or testing of detectors. A characterization of an X-ray system for performing calibration and testing of radiation dosimeters used for individual monitoring was done. Stability and traceability of the standard ionization, reliability of the calibration procedure in terms of air kerma in air and ability to provide Hp(10) calibrations were studied. Results proved that the X-ray calibration was reliable.

Neutron spectra from Neutron Standards Laboratory (LPN/CIEMAT) sources with two Bonner sphere spectrometers

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