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Today's technology in Proton Therapy

One of the main challenges of proton therapy today is to produce an equipment that, because of its size and cost, is accessible for general health centers. This way, this therapy will not only be possible in a few centers in developed countries. For this purpose, new equipment has been developed for a single treatment room and equipped with small size cyclotrons with modern technology (including superconducting coil), capable of generating proton beams with energies higher than 200 MeV suitable for the Radiotherapy treatments. From a clinical point of view, the PBS (Pencil Beam scanning) technique has provided an essential tool to advance in obtaining better dose distributions, allowing the incorporation of the IMPT (intensity-modulated proton therapy) technique that today shows significant advances in clinical dosimetry. In conjunction with these new technologies are developing techniques of prompt gamma imaging that will allow "in vivo" specific patient quality assurance, whose first results in clinical practice have been presented recently.

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