PRODUCTION OF $^{11}$C CHOLINE IN THE UNIVERSITY INSTITUTE FOR PET – NEW PERSPECTIVE IN DIAGNOSTICS OF PROSTATE MALIGNANCY IN REPUBLIC OF MACEDONIA

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$[^{11}C] Choline$ injection is a radiopharmaceutical for oncological PET imaging of tumors which overexpress choline kinase.

$^{11}$C is produced by cyclotron as $[^{11}C]CO_2$ or $[^{11}C]CH_4$.

$^{11}$C radionuclide, produced as a gas in one of these chemical forms, is being transported through stainless steel tube to the GMP production laboratory, where a hot cell for synthesis of $[^{11}C]$ Choline and a hot cell for dispensing are installed.

The most important clinical application of this PET radiopharmaceutical is in prostate cancer that can be visualized precisely, having differentiated localization located in comparison with benign tissue.

The automatic compact injector system allows automatic intravenous infusion of radiopharmaceuticals in a radiologically safe manner.

$[^{11}C] Choline$ injection is used in prostate cancer PET imaging.

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The University Institute for Positron Emission Tomography in Skopje is equipped with a cyclotron GE PETtrace 800 for production of $^{18}F$, $^{11}C$, $^{13}N$ and option for solid targets.

The UI PET Skopje is the first center with all these opportunity in the Balkan region which has full equipment for production of $[^{11}C]$ Choline radiopharmaceutical. In our country where improving the health care system is one of the national imperatives, introducing $[^{11}C]$ Choline PET/CT as diagnostic procedure, will contribute to the strategy for better management of patients with prostate malignancy.