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Metformin and cancer: Technical and clinical implications for FDG-PET imaging

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Abstract

Metformin is the most widely used hypoglycemic agent. Besides its conventional indications, increasing evidence demonstrate a potential efficacy of this biguanide as an anticancer drug. Possible mechanisms of actions seem to be independent from its hypoglycemic effect and seem to involve the interference with key pathways in cellular proliferation and glycolysis. To date, many clinical trials implying the use of metformin in cancer treatment are on-going. The increasing use of 18F-2-Fluoro-2-Deoxy-d-Glucose Positron Emission Tomography (FDG-PET) in cancer evaluation raises a number of questions about the possible interference of the biguanide on FDG distribution. In particular, the interferences exerted by metformin on AMPK pathway (the cellular energy sensor), on insulin levels and on Hexokinase could potentially have repercussion on glucose handling and thus on FDG distribution. A better comprehension of the impact of metformin on FDG

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