Abstract:
Prostate-specific membrane antigen (PSMA) is a promising target in prostate cancer. Recently, we started the first-in-human treatment with an α-radionuclide–labeled PSMA ligand. Although the case series is still ongoing, we here report in advance about two patients in highly challenging clinical situations who showed a complete response to 225Ac-PSMA-617 therapy. Methods: 68Ga-PSMA-11 PET/CT validated the presence of the PSMA-positive tumor phenotype. A 100-kBq activity of 225Ac-PSMA-617 per kilogram of body weight was administered bimonthly. Prostate-specific antigen response and hematologic toxicity were measured at least every 4 wk. Restaging was performed with 68Ga-PSMA-11 PET/CT. Results: Both patients experienced a prostate-specific antigen decline to below the measurable level and showed a complete response on imaging. No relevant hematologic toxicity was observed. Xerostomia was the only mentionable clinical side effect. Conclusion: Targeted α-therapy with 225Ac-PSMA-617, although still experimental, obviously has strong potential to significantly benefit advanced-stage prostate cancer patients.

URI:

Authors:
KRATOCHWIL Clemens
BRUCHERTSEIFER Frank
GIESEL Frederik
WEIS Mirjam
VERBURG Frederik Anton
MOTTAGHY F
KOPKA Klaus
APOSTOLIDIS Christos
HABERKORN Uwe
MORGENSTERN Alfred

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