179 - High rate of objective anti-tumor response in 9 patients with primary or recurrent glioblastoma after viro-immunotherapy with oncolytic parvovirus H-1 in combination with bevacicumab and PD-1 checkpoint blockade

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Background: Combination therapy is an emerging concept to improve the cinical effects of oncolytic virus based anti-cancer strategies. The oncolytic H-1 parvovirus (H-1PV) induced markers of immune activation in patients with recurrent glioblastoma in a phase I/IIa trial (ParvOryx01). The goal of this investigation was to enhanced H-1PV efficiency by a combination with immune modulators, namely bevacicumab and checkpoint blockade.
Methods: 9 patients with primary (n=2) or recurrent (n=7) glioblastoma were treated with a combination of H-1PV followed by bevacicumab and PD-1 blockade based on a compassionate use (CU) agreement. 7 of the patients were treated by intratumoral and intravenous injection of H-1PV and 2 patients by intravenous injection only. GMP-grade H-1 virus and all medication was provided by Oryx GmbH&Co KG, Baldham, Germany) on a humanitarian basis. Objective tumor response was analyzed by MRI through an independent neuroradiologist using RANO criteria.
Results: MRI showed objective tumor response in 7 of 9 patients (78%): two complete responses (22%), 5 partial remissions (56%) with tumor reduction between 49% up to 94% and 2 progressive diseases (22%). Both patients with progressive disease showed local anti-tumor responses but developed new lesions. The treatment was well tolerated and lead to clinical improvement in all symptomatic patients.
Conclusion: H-1PV based viro-immunotherapy lead to objective tumor responses in 78% of glioblastoma patients even after all but two patients had failed previous therapies. This is a high response rate in this very difficult to treat tumor entity and it supports further systematic clinical development of this novel concept for malignant glioma therapy.