

POSTER PRESENTATION

Open Access

Analysis of predictive and prognostic factors in 290 patients treated with oncolytic adenoviruses

Kristian Taipale^{1*}, Ilkka Liikanen¹, Anniina Koski¹, Anna Kanerva¹, Minna Oksanen¹, Akseli Hemminki²

From 30th Annual Meeting and Associated Programs of the Society for Immunotherapy of Cancer (SITC 2015) National Harbor, MD, USA. 4-8 November 2015

Background

After years of development, oncolytic viruses are nearing a breakthrough into clinical use. In order to facilitate the implementation of this new form of immunotherapy, all existing clinical experience must be utilized to optimize treatment strategies, improve patient selection and develop even more effective oncolytic therapeutics.

Here we report clinical factors that affected the prognosis and predicted treatment efficacy in 290 patients treated with oncolytic adenoviruses. In these analyses, survival and efficacy determined by radiological response criteria were used as dependent variables in multi-parameter regression models. In prognostic models measuring hazard ratio (HR) for cancer mortality, tumor type and virus arming were found to affect the prognosis of the patients significantly. Gynecological tumors were notably linked to better prognosis (HR 0.477, $p=0.004$). Patients treated with viruses coding for GMCSF (HR 0.549, $p=0.003$) or GMCSF-coding viruses and CD40L-coding viruses (HR 0.439, $p=0.023$) were more likely to survive longer. In the predictive models the administration of the virus was discovered to independently influence the efficacy of the treatment. Patients who received most of the treatments as intraperitoneal injections were more likely to achieve disease control status (OR 3.878, $p=0.016$). In a small subset of patients ($n=13$) who received all treatments intravenously the probability of disease control was even higher (OR 8.995, $p=0.032$).

Conclusions

These data indicate several options for further development of oncolytic adenovirus therapy. Concentration on sensitive diseases and choosing the right patient subsets for treatment, as well as finding optimal administration schemes, are key steps in improving the therapeutic

efficacy of adenoviruses. The results suggest that evaluating the immunological status of the patients before oncolytic virotherapy can offer important prognostic information. In order to be translated to the field of personalized oncology, this concept requires still further investigation.

Authors' details

¹Cancer Gene Therapy Group / University of Helsinki, Helsinki, Finland. ²Cancer Gene Therapy Group, Medicum, Haartman Institute, University of Helsinki, Helsinki, Finland. ³TILT Biotherapeutics Ltd, Helsinki, Finland.

Published: 4 November 2015

doi:10.1186/2051-1426-3-S2-P344

Cite this article as: Taipale et al.: Analysis of predictive and prognostic factors in 290 patients treated with oncolytic adenoviruses. *Journal for Immunotherapy of Cancer* 2015 **3**(Suppl 2):P344.

**Submit your next manuscript to BioMed Central
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit



¹Cancer Gene Therapy Group / University of Helsinki, Helsinki, Finland
Full list of author information is available at the end of the article