

## Personalized multimodality therapy (ICT) with immune checkpoint inhibitors (ICI), chemotherapy (CT), and targeted treatment (TT), in advanced/refractory cancer.

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### Abstract

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**Background:** Therapy for advanced/refractory malignancies is associated with poor prognosis. The combination of ICI and CT has been shown in lung and several other cancers to be superior to CT alone. Since ICI, CT, and TT have a convergent efficacy with divergent toxicity, the combination was evaluated in the treatment of these diseases. Initial evaluation was reported in JCO. 2019 37.15 suppl. e14254. **Methods:** Treatment was highly personalized and based on diagnosis, prior therapy, and eligibility for TT. Genomic profiling was done to determine TT. ICI included pembrolizumab in 14, nivolumab in 8, and atezolizumab in 2. Chemotherapy was given in 28-day cycles. 23 received multiple agents. 17 received platinum, 11 taxanes. TT included erlotinib in 6, bevacizumab in 6, cetuximab in 2, everolimus 2, and 8 received others. From 04/2016 to 12/2019, 24 patients, median (M) age 62 (27-78) received ICT; 15 females, 9 males. Tumor type: lung 9, pancreas 4, colon 2, glioblastoma multiforme 2, melanoma 2, stomach 1, cervix 1, cholangiocarcinoma 1, thymoma 1, Hodgkin's lymphoma 1. 18 patients had prior therapy, M2 (1-11), of them 6 had ICI and 5 TT. Response evaluation was based on PET scan. Tumor regression occurred after the first cycle. **Results:** All patients responded. 12 (50%) achieved CR, M14 months (3-32+); 11 (45.8%) had PR, M5+ months (1+ - 20+); and 1 minor response 1+ month. CR + PR was 95.8%. All 3 patients with lung cancer and metastases to brain, achieved CR in brain. Of 3 patients with advanced gastrointestinal cancer, 2 achieved CR and 1 achieved more than 95% reduction in disease. Tolerance was reasonable. No unexpected side effects were noted. Adverse events were primarily hematologic and febrile events/infection. **Conclusions:** Personalized ICT combination in advanced/refractory and diverse cancer diagnoses is associated with more than 95% response rate. In particular, it was effective in primary and metastatic CNS disease.

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