

Response to Chemotherapy Necessary in G2 and G3 Neuroendocrine Carcinomas

Walter I. Kocha¹

¹London Regional Cancer Center, London Ontario, Canada N6A 4L6

Background: Although approaches to treatment of G1 and G3 neuroendocrine carcinomas are generally agreed upon, treatment of G2 and G3 disease is problematic. Therapy should initially be directed to the highest proliferating component with chemotherapy. Residual disease could sequentially be treated with the modalities relevant to that G1 tumor such as peptide receptor radioisotope therapy (PRRT). What degree of response therefore should be expected utilizing chemotherapy depending on the proportion of the rapidly proliferating component?

Methods: A simple mathematical model of tumor volume related to tumor diameter was considered assuming that the perfectly spherical tumor was the least sensitive case. Varying the total fraction of tumor volume that was of high proliferation and assuming that all of the actively proliferating tumor compartment was eradicated by chemotherapy, the expected change in tumor diameter was calculated as defined and utilized by the RECIST criteria.

Results: Based on the RECIST criterion of a decrease in diameter of greater than 30% required classification as response, the model predicts that the threshold for partial response could not be satisfied unless the initial proliferative fraction is 40% or greater.

Conclusion: Patients with G2 and low G3 disease should have at least stable disease to consider transitioning to treat residual disease as G1 disease.