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Adjuvant Intraoperative Post-Dissection Tumor Bed Chemotherapy – A Novel Approach in Treating Midgut Neuroendocrine Tumors

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Background: Midgut neuroendocrine tumor (NET) patients are often diagnosed at an advanced stage with extensive mesenteric lymph node and liver metastasis. Even with skillful surgical dissection, macro and microscopic residual disease at the dissection site remains a possibility. We hypothesized these potential tumor residuals in mesenteric lymph node dissection beds can be eliminated safely by a local application of 5-fluouracil (5-FU).

Methods: Retrospectively, charts of 62 consecutive midgut NET patients with boggy mesenteric lymphadenopathy underwent cytoreductive debulking surgeries from 1/2007 to 12/2009 were reviewed. 32 patients received an intraoperative application of 5-FU saturated gelfoam strips secured into the mesenteric defect following the extensive lymphadenectomy. 30 untreated patients served as a control.

Results: 5-year survival after cytoreductive surgeries was 22/32 (68.8%) for the treated group, versus 20/30 (66.7%) for the control. 6 patients (6/32, 18.8%) among the study group required additional debulking surgeries, versus 16 patients (16/30, 53.3%) in the controlled group. Upon reoperation, locoregional recurrence was noted in 9 of the 16 patients (56.3%) in the control group, versus only 2/6 (33.3%) of treated patients. Post-op complication rates are similar in the two arms.

Conclusion: Intraoperative application of chemotherapy is a safe and effective adjuvant for eliminating any potential microscopic residual disease after extensive cytoreductive surgeries in advanced stage NET patients with mesenteric lymph node metastasis. It provides patients with sustained, slow releasing, high dose of 5-FU within the surgical bed with a negligible side effect profile, whereby reducing local recurrence rates and decreased the need of reoperation. Further study is required to evaluate its effect on long term survival.