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Extensive "Multitasking" Surgery for Advanced Enteropancreatic Neuroendocrine Tumors (NETS): A Safe and Effective Approach

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Introduction: Management of advanced-metastatic-NETs is controversial. Our Center's philosophy is to offer a systematic, planned multimodality treatment for such patients, with major "debulking "surgery, representing a major component of the therapeutic strategy.

Aims: To demonstrate that this surgical tumor reductive component achieves a major Improvement in symptoms and quality of life.

Materials and methods: From 1994 to 2007, 57 patients (ages 26 to 78, mean 56), 21 males and 36 females underwent extensive surgery for advanced metastatic NETs; Minimal follow-up was of three years, with median of 8 years. 35/57 presented with typical and significant carcinoid syndrome, mostly originating in small bowel. All patients were fully evaluated by serum markers, nuclear and radiological imaging and echocardiogram to assess for cardiac valvular involvement. All surgeries in this series were performed by one surgeon (MS), and included: Resection of primary tumor(s), lymph nodes, peritoneal and retroperitoneal metastases, liver resection(s), cryoablation/radiofrequency ablation for liver metastases and all patients had a cholecystectomy. Several patients underwent pancreatectomy and hysterectomy/salpingo-oophorectomy. 8/57 had significant tricuspid and pulmonary valvular disease and underwent cardiac valvular replacement prior to abdominal surgery. Samples of all resected tissues were collected for expression of growth factors such as EGF and VEGF and for in vitro tumor cell culture to assess for chemosensitivity and chemoresistance, to help personalize postoperative treatment options. All patients were pretreated with short and long acting Octreotide. Perioperative high dose continuous infusion was

administered intravenously and tapered progressively after surgery.

Results: There were no operative mortalities. Four major complications were treated non operatively: 1 pancreatitis, 1 biliary fistula, 1 pancreatic fistula and 1 upper abdominal hematoma. No patients developed "carcinoid crisis "Blood pressure and pulse rate fluctuations intraoperatively were treated by increasing dosage of intravenous Octreotide.. Postoperatively there was an immediate and prolonged symptomatic relief in all patients. Long term survival is presently being evaluated.

Conclusions: Treatment of advanced, metastatic, NETs by "multitasking" surgery in one operative session, including major extensive debulking, is safe, efficacious and well tolerated.