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A Prospective Trial on the Effect of Body Mass Index and Gender on Plasma Octreotide Levels in Patients Undergoing Long Term Therapy With Octreotide LAR

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Background: Octreotide and its long acting form Octreotide LAR are widely used to control the symptoms of patients with functional neuroendocrine tumors. Unfortunately, most patients escape control over time and require higher LAR doses or more frequent rescue therapy to remain asymptomatic. Previous work has shown that body weight and monthly LAR dose will significantly affect circulating plasma octreotide levels in patient undergoing therapy.

Methods: To determine the parameters that change circulating plasma octreotide levels we prospectively studied 82 (43 F/39M) patients undergoing long term LAR therapy.

Results: Multivariate analysis demonstrated that the plasma octreotide level decreases by approximately 3.4 percent for each unit that the BMI increases (p-value = 0.030), adjusting for gender and monthly LAR dose. Similarly, plasma octreotide levels for females were about 47.6 percent higher than males (p-value = 0.045), adjusting for BMI and monthly LAR dose.

Conclusions: Initial and subsequent octreotide LAR doses should take into consideration gender and BMI. Males are estimated to require 14.1 mg (SD=7.25) higher monthly LAR dose than females with the same BMI. Also the monthly LAR dose should be increased by 1.3 mg (SD=0.62) for each unit of BMI increase to achieve the same plasma octreotide level. We have shown that octreotide plasma levels are affected not only by LAR dose but also BMI and gender. We have further estimated the adjustments necessary to obtain adequate octreotide levels depending on individual patient characteristics. We hope this will make initial and subsequent Octreotide LAR dosing easier for physicians in the clinical setting.