C8

Gender Related Issues in Gluteal Intramuscular Injections

Jeana L. Garris,[1] Linda L. DeFord,[3] Cecile G. Dagohoy,[1] Colleen C. Leary,[1] Valentine G. Boving,[3] James P. Brook,[2] Jeannette E. Mares,[1] April E. Boyd,[2] Alexandria T. Phan,[1] James C. Yao[1]

Departments of Gastrointestinal Medical Oncology,[1] the Gastrointestinal Center,[2] and the Office of Performance Improvement,[3] The University of Texas M. D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, United States

Background: Gluteal intramuscular injection of octreotide LAR is effective for control of carcinoid syndrome and delay of tumor growth in midgut carcinoid tumors. However, many intended gluteal intramuscular injections are delivered subcutaneously which may lead to altered pharmacokinetics and suboptimal therapeutic outcomes. We examine gender related issues in gluteal intramuscular injections.

Methods: Patients receiving intramuscular injection of octreotide LAR at the Gastrointestinal Center, University of Texas M. D. Anderson Cancer Center were identified. Pelvic CTs were reviewed for evaluation of injection success, measurement of injection depth, and skin to muscle depth.

Results: 251 intended intramuscular injections between 12/21/2005 and 6/25/2008 were evaluable by CT. Among these, 119 (47%) were given to males; 132 (53%) were given to females. 105 (42%) were associated with subcutaneous nodules indicating subcutaneous placement; 146 (58%) were deemed successful intramuscular injection. Successful intramuscular injection rate was lower in females (42% vs 77%; P<0.001). Females had lower BMI (mean, 26.6 vs 28.8; P=0.008), but greater skin to muscle depth at optimal injection site (mean, 34 vs 24 mm; P<0.001). BMI correlated linearly with skin to muscle depth (P=0.001). Among those with failed intramuscular injections, depth of needle placement was deeper among females (mean, 30 vs 25 mm; P=0.002). Self reported nursing experience level affected success rate of gluteal intramuscular to a greater degree among females compared to males (see table).

Self-reported parameter	IM success rate Female	IM success rate Male	P*
Experience with IM injection			
Moderate	33%	75%	0.001
Very	53%	73%	0.015
Comfort with LAR injection (scale 1–10)			
1-9	23%	66%	<0.001
10	68%	81%	0.135

*Gender difference within experience level

Conclusions: Gluteal intramuscular injections are more difficult in females due to greater skin to muscle distance despite lower BMI. Increased nursing education and introduction of longer needles are needed.