

Supplemental Materials

References

1. Soykan I, Sivri B, Sarosiek I, Kiernan B, McCallum RW. Demography, clinical characteristics, psychological and abuse profiles, treatment, and long-term follow-up of patients with gastroparesis. *Dig Dis Sci* 1998;43:2398-2404
2. Maleki D, Locke GR III, Camilleri M, Zinsmeister AR, Yawn BP, Leibson C, Melton LJ III. Gastrointestinal tract symptoms among persons with diabetes mellitus in the community. *Arch Intern Med* 2000;160:2808-2816
3. Bytzer P, Talley NJ, Leemon M, Young LJ, Jones MP, Horowitz M. Prevalence of gastrointestinal symptoms associated with diabetes mellitus: a population-based survey of 15,000 adults. *Arch Intern Med* 2001;161:1989-1996
4. Talley NJ, Bytzer P, Hammer J, Young L, Jones M, Horowitz M. Psychological distress is linked to gastrointestinal symptoms in diabetes mellitus. *Am J Gastroenterol* 2001;96:1033-1038
5. Bredenoord AJ, Chial HJ, Camilleri M, Mullan BP, Murray JA. Gastric accommodation and emptying in evaluation of patients with upper gastrointestinal symptoms. *Clin Gastroenterol Hepatol* 2003;1:264-272
6. Jung HK, Choung RS, Locke GR 3rd, Schleck CD, Zinsmeister AR, Szarka LA, Mullan B, Talley NJ. The incidence, prevalence, and outcomes of patients with gastroparesis in Olmsted County, Minnesota, from 1996 to 2006. *Gastroenterology* 2009;136:1225-1233
7. Choung RS, Locke GR, Schleck C, Zinsmeister A, Talley NJ. Cumulative incidence of gastroparesis in people with type 1 and 2 diabetes in the general population. *Am J Gastroenterol* 2008;103(Suppl):S309

8. Kassander P. Asymptomatic gastric retention in diabetics (gastroparesis diabeticorum). *Ann Intern Med* 1958;48:797-812
9. Keshavarzian A, Iber FL, Vaeth J. Gastric emptying in patients with insulin-requiring diabetes mellitus. *Am J Gastroenterol* 1987;82:29-35
10. Jones KL, Russo A, Berry MK, Stevens JE, Wishart JM, Horowitz M. A longitudinal study of gastric emptying and upper gastrointestinal symptoms in patients with diabetes mellitus. *Am J Med* 2002;113:449-455
11. Punkkinen J, Färkkilä M, Mätzke S, Korppi-Tommola T, Sane T, Piirilä P, Koskenpato J. Upper abdominal symptoms in patients with Type 1 diabetes: unrelated to impairment in gastric emptying caused by autonomic neuropathy. *Diabet Med* 2008;25:570-577
12. Talley NJ, Young L, Bytzer P, Hammer J, Leemon M, Jones M, Horowitz M. Impact of chronic gastrointestinal symptoms in diabetes mellitus on health-related quality of life. *Am J Gastroenterol* 2001;96:71-76
13. Kong MF, Horowitz M, Jones KL, Wishart JM, Harding PE. Natural history of diabetic gastroparesis. *Diabetes Care* 1999;22:503-507
14. Hyett B, Martinez FJ, Gill BM, Mehra S, Lembo A, Kelly CP, Leffler DA. Delayed radionuclide gastric emptying studies predict morbidity in diabetics with symptoms of gastroparesis. *Gastroenterology* 2009;137:445-452
15. Wang YR, Fisher RS, Parkman HP. Gastroparesis-related hospitalizations in the United States: trends, characteristics, and outcomes, 1995-2004. *Am J Gastroenterol* 2008;103:313-322
16. Humanitarian Device Exemption for Enterra Device. *Federal Registry* 2000;65:78495-78496

17. O'Grady G, Egbuji JU, Du P, Cheng LK, Pullan AJ, Windsor JA. High-frequency gastric electrical stimulation for the treatment of gastroparesis: a meta-analysis. *World J Surg* 2009;33:1693-1701
18. McCallum RW, Snape W, Brody F, Wo J, Parkman HP, Nowak T. Gastric electrical stimulation with Enterra improves symptoms from diabetic gastroparesis in a prospective study. *Clin Gastroenterol Hepatol*. 2010 Jun 9. [Epub ahead of print]
19. Uppalapati SS, Ramzan Z, Fisher RS, Parkman HP. Factors contributing to hospitalization for gastroparesis exacerbations. *Dig Dis Sci*. 2009; 54: 2404-9).
20. He CL, Soffer EE, Ferris CD, Walsh RM, Szurszewski JH, Farrugia G. Loss of interstitial cells of Cajal and inhibitory innervation in insulin-dependent diabetes. *Gastroenterology* 2001;121:427-434
21. Horowitz M, Wishart JM, Jones KL, Hebbard GS. Gastric emptying in diabetes: an overview. *Diabet Med* 1996;13(Suppl 5):S16-22
22. Camilleri M. The stomach in diabetes: from villain to ally. *Clin Gastroenterol Hepatol* 2009;7:285-287
23. Lustman PJ, Clouse RE. Depression in diabetic patients: the relationship between mood and glycemic control. *J Diabetes Complications* 2005;19:113-122
24. Schwartz TW. Pancreatic polypeptide: a hormone under vagal control. *Gastroenterology* 1983;85:1411-1425
25. Buysschaert M, Donckier J, Dive A, Ketelslegers JM, Lambert AE. Gastric acid and pancreatic polypeptide responses to sham feeding are impaired in diabetic subjects with autonomic neuropathy. *Diabetes* 1985;34:1181-1185

26. Lam WF, Masclee AA, de Boer SY, Lamers CB. Hyperglycemia reduces gastric secretory and plasma pancreatic polypeptide responses to modified sham feeding in humans. *Digestion* 1993;54:48-53
27. Guy RJ, Dawson JL, Garrett JR, Laws JW, Thomas PK, Sharma AK, Watkins PJ. Diabetic gastroparesis from autonomic neuropathy: surgical considerations and changes in vagus nerve morphology. *J Neurol Neurosurg Psychiatr* 1984;47:686-691
28. Duchon LW, Anjorin A, Watkins PJ, Mackay JD. Pathology of autonomic neuropathy in diabetes mellitus. *Ann Intern Med* 1980;92:301-303
29. Kennedy WR, Navarro X, Goetz FC, Sutherland DE, Najarian JS. Effects of pancreatic transplantation on diabetic neuropathy. *N Engl J Med.* 1990; 322: 1031-7
30. Gaber AO, Hathaway DK, Abell T, Cardoso S, Hartwig MS, el Gebely S. Improved autonomic and gastric function in pancreas-kidney vs kidney-alone transplantation contributes to quality of life. *Transplant Proc.* 1994; 26: 515-6
31. Choi KM, Gibbons SJ, Nguyen TV, Stoltz GJ, Lurken MS, Ordog T, Szurszewski JH, Farrugia G. Heme oxygenase-1 protects interstitial cells of Cajal from oxidative stress and reverses diabetic gastroparesis. *Gastroenterology* 2008;135:2055-2064
32. Choi KM, Kashyap PC, Dutta N, Stoltz GJ, Ordog T, Shea Donohue T, Bauer AJ, Linden DR, Szurszewski JH, Gibbons SJ, Farrugia G. CD206-positive M2 macrophages that express heme oxygenase-1 protect against diabetic gastroparesis in mice. *Gastroenterology* 2010;138:2399-2409
33. Gangula PR, Mukhopadhyay S, Ravella K, Cai S, Channon KM, Garfield RE, Pasricha PJ. Tetrahydrobiopterin (BH4), a cofactor for nNOS, restores gastric emptying and nNOS expression in female diabetic rats. *Am J Physiol* 2010;298:G692-G699

34. Gangula PR, Maner WL, Micci MA, Garfield RE, Pasricha PJ. Diabetes induces sex-dependent changes in neuronal nitric oxide synthase dimerization and function in the rat gastric antrum. *Am J Physiol* 2007;292:G725-G730
35. Lurken MS, Parkman HP, Abell TL, Snape WJ, Nyugen LA, Hasler WL, Koch K, Pasricha PJ, Tonascia J, James SP, Hamilton FA, Lee LA, Farrugia G. Histological changes in idiopathic and diabetic gastroparesis. *Neurogastroenterol Motil* 2009;21:74
36. Farrugia G. Interstitial cells of Cajal in health and disease. *Neurogastroenterol Motil* 2008;20:54-63
37. Horváth VJ, Vittal H, Lörincz A, Chen H, Almeida-Porada G, Redelman D, Ordög T. Reduced stem cell factor links smooth myopathy and loss of interstitial cells of cajal in murine diabetic gastroparesis. *Gastroenterology* 2006;130:759-770
38. Choi KM, Gibbons SJ, Nguyen TV, Stoltz GJ, Lurken MS, Ordog T, Szurszewski JH, Farrugia G. Heme oxygenase-1 protects interstitial cells of Cajal from oxidative stress and reverses diabetic gastroparesis. *Gastroenterology* 2008;135:2055-2064
39. Kashyap PC, Choi KM, Dutta N, Linden DR, Szurszewski JH, Gibbons SJ, Farrugia G. Carbon monoxide reverses diabetic gastroparesis in NOD mice. *Am J Physiol* 2010;298:G1013-G1019
40. Bharucha AE, Kulkarni A, Choi KM, Camilleri M, Lempke M, Brunn GJ, Gibbons SJ, Zinsmeister AR, Farrugia G. First-in-human study demonstrating pharmacological activation of heme oxygenase-1 in humans. *Clin Pharmacol Ther* 2010;87:187-190
41. Lorincz A, Redelman D, Horváth VJ, Bardsley MR, Chen H, Ordög T. Progenitors of interstitial cells of Cajal in the postnatal murine stomach. *Gastroenterology* 2008;134:1083-1093

42. Kruger GM, Mosher JT, Bixby S, Joseph N, Iwashita T, Morrison SJ. Neural crest stem cells persist in the adult gut but undergo changes in self-renewal, neuronal subtype potential, and factor responsiveness. *Neuron* 2002;35:657–669
43. Salehi M, Aulinger BA, D'Alessio DA. Targeting beta-cell mass in type 2 diabetes: promise and limitations of new drugs based on incretins. *Endocr Rev* 2008;29:367-379
44. Vella A, Bock G, Giesler PD, Burton DB, Serra DB, Saylan ML, Dunning BE, Foley JE, Rizza RA, Camilleri M. Effects of dipeptidyl peptidase-4 inhibition on gastrointestinal function, meal appearance, and glucose metabolism in type 2 diabetes. *Diabetes* 2007;56:1475-1480
45. Iltz JL, Baker DE, Setter SM, Keith Campbell R. Exenatide: an incretin mimetic for the treatment of type 2 diabetes mellitus. *Clin Ther* 2006;28:652-665
46. Maes BD, Vanwalleghem J, Kuypers D, Ghooos Y, Rutgeerts PJ, Vanreenterghem YF. Differences in gastric motor activity in renal transplant recipients treated with FK-506 versus cyclosporine. *Transplantation* 1999;68:1482-1485
47. Eagle DA, Gian V, Lauwers GY, Manivel JC, Moreb JS, Mastin S, Wingard JR. Gastroparesis following bone marrow transplantation. *Bone Marrow Transplant* 2001;28:59-62
48. Camilleri M, Brown ML, Malagelada JR. Relationship between impaired gastric emptying and abnormal gastrointestinal motility. *Gastroenterology* 1986;91:94-99
49. Houghton LA, Read NW, Heddle R, Horowitz M, Collins PJ, Chatterton B, Dent J. Relationship of the motor activity of the antrum, pylorus, and duodenum to gastric emptying of a solid-liquid mixed meal. *Gastroenterology* 1988;94:1285-1291
50. Mearin F, Camilleri M, Malagelada JR. Pyloric dysfunction in diabetics with recurrent nausea and vomiting. *Gastroenterology* 1986;90:1919-1925

51. Camilleri M, Brown ML, Malagelada JR. Impaired transit of chyme in chronic intestinal pseudoobstruction. Correction by cisapride. *Gastroenterology* 1986;91:619-626
52. Samsom M, Salet GA, Roelofs JM, Akkermans LM, Vanberge-Henegouwen GP, Smout AJ. Compliance of the proximal stomach and dyspeptic symptoms in patients with type I diabetes mellitus. *Dig Dis Sci* 1995;40:2037-2042
53. Samsom M, Roelofs JM, Akkermans LM, van Berge Henegouwen GP, Smout AJ. Proximal gastric motor activity in response to a liquid meal in type I diabetes mellitus with autonomic neuropathy. *Dig Dis Sci* 1998;43:491-496
54. Camilleri M, Hasler WL, Parkman HP, Quigley EM, Soffer E. Measurement of gastrointestinal motility in the GI laboratory. *Gastroenterology* 1998;115:747-762
55. Parkman HP, Hasler WL, Barnett JL, Eaker EY, American Motility Society Clinical GI Motility Testing Task Force. Electrogastrography: a document prepared by the gastric section of the American Motility Society Clinical GI Motility Testing Task Force. *Neurogastroenterol Motil* 2003;15:89-102
56. Egbuji JU, O'Grady G, du P, Cheng LK, Lammers WJ, Windsor JA, Pullan AJ. Origin, propagation and regional characteristics of porcine gastric slow wave activity determined by high-resolution mapping. *Neurogastroenterol Motil* 2010 Jul 6. [Epub ahead of print],
57. Charles F, Phillips SF, Camilleri M, Thomforde GM. Rapid gastric emptying in patients with functional diarrhea. *Mayo Clinic Proceedings* 1997;72:323-328
58. Weytjens C, Keymeulen B, Van Haleweyn C, Somers G, Bossuyt A. Rapid gastric emptying of a liquid meal in long-term Type 2 diabetes mellitus. *Diabetic Medicine* 1998;15:1022-1027
59. Delgado-Aros S, Camilleri M, Cremonini F, Ferber I, Stephens D, Burton DD. Contributions of gastric volumes and gastric emptying to meal size and postmeal symptoms in

functional dyspepsia. *Gastroenterology* 2004;127:1685-1694

60. Lawal A, Barboi A, Krasnow A, Hellman R, Jaradeh S, Massey BT. Rapid gastric emptying is more common than gastroparesis in patients with autonomic dysfunction. *Am J Gastroenterol* 2007;102:618-623

61. Bharucha AE, Camilleri M, Forstrom L, Zinsmeister AR. Relationship between clinical features and gastric emptying disturbances in diabetes mellitus. *Clin Endocrinol* 2008;70:415-420

62. Malhotra N, Pathikonda M, Sachdeva P, Maurer AH, Fisher RS, Parkman HP. Rapid gastric emptying or gastroparesis: Can one tell the difference in the clinic? *Gastroenterology* 2010;138:W1388

63. Niriella MA, Sonoda LI, Balan K, Middleton S. Idiopathic rapid gastric emptying: A clinical profile. *Gastroenterology* 2010;138:W1410

64. Phillips WT, Schwartz JG, McMahan CA. Rapid gastric emptying of an oral glucose solution in type 2 diabetic patients. *J Nucl Med* 1992;33:1496-1500

65. Frank JW, Saslow SB, Camilleri M, Thomforde GM, Dinneen S, Rizza RA. Mechanism of accelerated gastric emptying of liquids and hyperglycemia in patients with type II diabetes mellitus. *Gastroenterology* 1995;109:755-765

66. Nowak TV, Johnson CP, Kalbfleisch JH, Roza AM, Wood CM, Weisbruch JP, Soergel KH. Highly variable gastric emptying in patients with insulin dependent diabetes mellitus. [see comment]. *Gut* 1995;37:23-29

67. Schwartz JG, Green GM, Guan D, McMahan CA, Phillips WT. Rapid gastric emptying of a solid pancake meal in type II diabetic patients.[see comment]. *Diabetes Care* 1996;19:468-471

68. Bertin E, Schneider N, Abdelli N, Wampach H, Cadiot G, Loboguerrero A, Leutenegger M, Liehn JC, Thieffin G. Gastric emptying is accelerated in obese type 2 diabetic patients without autonomic neuropathy. *Diab Metab* 2001;27:357-364
69. Fich A, Neri M, Camilleri M, Kelly KA, Phillips SF. Stasis syndromes following gastric surgery: clinical and motility features of 60 symptomatic patients. *J Clin Gastroenterol* 1990;12:505-512
70. Bredenoord AJ, Chial HJ, Camilleri M, Mullan BP, Murray JA. Gastric accommodation and emptying in evaluation of patients with upper gastrointestinal symptoms. *Clin Gastroenterol Hepatol* 2003;1:264-272
71. Jahnberg T, Abrahamsson H, Jansson G, Martinson J. Gastric relaxatory response to feeding before and after vagotomy. *Scand J Gastroenterol* 1977;12:225-228
72. Desai KM, Zembowicz A, Sessa WC, Vane JR. Nitroergic nerves mediate vagally induced relaxation in the isolated stomach of the guinea pig. *Proc Natl Acad Sci USA* 1991;88:11490-11494
73. Abell TL, Familoni B, Voeller G, Werkman R, Dean P, Waters B, Smalley D, Salameh JR. Electrophysiologic, morphologic, and serologic features of chronic unexplained nausea and vomiting: lessons learned from 121 consecutive patients. *Surgery* 2009;145:476-485
74. Harberson J, Thomas RM, Harbison SP, Parkman HP. Gastric neuromuscular pathology in gastroparesis: analysis of full-thickness antral biopsies. *Dig Dis Sci* 2010;55:359-370
75. Pasricha PJ, Pehlivanov ND, Gomez G, Vittal H, Lurken MS, Farrugia G. Changes in the gastric enteric nervous system and muscle: a case report on two patients with diabetic gastroparesis. *BMC Gastroenterol* 2008;30:8-21

76. Ejskjaer NT, Bradley JL, Buxton-Thomas MS, Edmonds ME, Howard ER, Purewal T, Thomas PK, Watkins PJ. Novel surgical treatment and gastric pathology in diabetic gastroparesis. *Diabet Med* 1999;16:488-495
77. Forster J, Damjanov I, Lin Z, Sarosiek I, Wetzel P, McCallum RW. Absence of the interstitial cells of Cajal in patients with gastroparesis and correlation with clinical findings. *J Gastrointest Surg* 2005;9:102-108
78. Fraser H, Neshev E, Storr M, Urbanski SJ, Andrews CN. A novel method of full-thickness gastric biopsy via a percutaneous, endoscopically assisted, transenteric approach. *Gastrointest Endosc* 2010;71:831-834
79. Rajan E, Gostout CJ, Lurken MS, Talley NJ, Locke GR, Szarka LA, Sumiyama K, Bakken TA, Stoltz GJ, Knipschild MA, Farrugia G. Endoscopic “no hole” full-thickness biopsy of the stomach to detect myenteric ganglia. *Gastrointest Endosc* 2008;68:301-307
80. Rajan E, Gostout CJ, Lurken MS, Talley NJ, Locke GR, Szarka LA, Levy MJ, Sumiyama K, de la Mora-Levy JG, Bakken TA, Stoltz GJ, Knipschild MA, Farrugia G. Evaluation of endoscopic approaches for deep gastric-muscle-wall biopsies: what works? *Gastrointest Endosc* 2008;67:297-303
81. Rathmann W, Enck P, Frieling T, Gries FA. Visceral afferent neuropathy in diabetic gastroparesis. *Diabetes Care* 1991;14:1086-1089
82. Tack J, Bisschops R, Sarnelli G. Pathophysiology and treatment of functional dyspepsia. *Gastroenterology* 2004;127:1239-1255
83. Talley NJ, Verlinden M, Jones M. Can symptoms discriminate among those with delayed or normal gastric emptying in dysmotility-like dyspepsia? *Am J Gastroenterol* 2001;96:1422-1428

84. Vakil N, Laine L, Talley NJ, Zakko SF, Tack J, Chey WD, Kralstein J, Earnest DL, Ligozio G, Cohard-Radice M. Tegaserod treatment for dysmotility-like functional dyspepsia: results of two randomized, controlled trials. *Am J Gastroenterol* 2008;103:1906-1919
85. Sarnelli G, Caenepeel P, Geypens B, Janssens J, Tack J. Symptoms associated with impaired gastric emptying of solids and liquids in functional dyspepsia. *Am J Gastroenterol* 2003;98:783-788
86. Corinaldesi R, Stanghellini V, Raiti C, Rea E, Salgemini R, Barbara L. Effect of chronic administration of cisapride on gastric emptying of a solid meal and on dyspeptic symptoms in patients with idiopathic gastroparesis. *Gut* 1987;28:300-305
87. Jian R, Ducrot F, Ruskone A, Chaussade S, Rambaud JC, Modigliani R, Rain JD, Bernier JJ. Symptomatic, radionuclide and therapeutic assessment of chronic idiopathic dyspepsia. A double-blind placebo-controlled evaluation of cisapride. *Dig Dis Sci* 1989;34:657-664
88. Hasler WL, Wilson L, Parkman HP, Koch KL, Abell TL, Pasricha PJ, Nguyen L, Snape WJ, Farrugia G, Tonascia J, Unalp-Arida A, Lee LA, Hamilton FA. Importance of abdominal pain as a symptom in gastroparesis: relation to clinical factors, disease severity, quality of life, gastric retention, and medication use. *Gastroenterology* 2010;138(Supplement 1):S-461
89. Cherian D, Sachdeva P, Fisher RS, Parkman HP. Abdominal pain is a frequent symptom of gastroparesis. *Clin Gastroenterol Hepatol* 2010;8:676-681
90. Hasler WL, Parkman HP, Wilson LA, Pasricha PJ, Koch KL, Abell TL, Snape WJ, Farrugia G, Lee L, Tonascia J, Unalp-Arida A, Hamilton F. Psychological dysfunction is associated with symptom severity but not disease etiology or degree of gastric retention in patients with gastroparesis. *Am J Gastroenterol* 2010 Jun 29. [Epub ahead of print]

91. Abell TL, Camilleri M, Donohoe K, Hasler WL, Lin HC, McCallum RW, Nowak T, Nusynowitz ML, Parkman HP, Shreve P, Szarka LA, Snape WJ Jr, Ziessman HA. Consensus recommendations for gastric emptying scintigraphy. A Joint Report of the Society of Nuclear Medicine and the American Neurogastroenterology and Motility Society. *Am J Gastroenterol* 2008;103:753-763
92. Camilleri M, Malagelada JR. Abnormal intestinal motility in diabetics with the gastroparesis syndrome. *Eur J Clin Invest* 1984;14:420-427
93. Camilleri M. Diabetic gastroparesis. *N Engl J Med* 2007;356:820-829
94. Revicki DA, Camilleri M, Kuo B, Norton NJ, Murray L, Palsgrove A, Parkman HP. Development and content validity of a Gastroparesis Cardinal Symptom Index daily diary. *Aliment Pharmacol Ther* 2009;30:670-680
95. De La Loge C, Trudeau E, Marquis P, Revicki DA, Rentz AM, Stanghellini V, Talley NJ, Kahrilas P, Tack J, Dubois D. Responsiveness and interpretation of a quality of life questionnaire specific to upper gastrointestinal disorders. *Clin Gastroenterol Hepatol* 2004;2:778-786
96. McCallum RW, Ricci DA, Rakatansky H, Behar J, Rhodes JB, Salen G, Deren J, Ippoliti A, Olsen HW, Falchu K. A multicenter placebo-controlled clinical trial of oral metoclopramide in diabetic gastroparesis. *Diabetes Care* 1983;6:463-467
97. Patterson D, Abell T, Rothstein R, Koch K, Barnett J. A double-blind multicenter comparison of domperidone and metoclopramide in the treatment of diabetic patients with symptoms of gastroparesis. *Am J Gastroenterol* 1999;94:1230-1234
98. Coulie B, Tack J, Peeters T, Janssens J. Involvement of two different pathways in the motor effects of erythromycin on the gastric antrum in humans. *Gut* 1998;43:395-400

99. Janssens J, Peeters TL, Vantrappen G, Tack J, Urbain JL, De Roo M, Muls E, Bouillon R. Improvement of gastric emptying in diabetic gastroparesis by erythromycin. Preliminary studies. *N Engl J Med* 1990;322:1028-1031
100. Richards RD, Davenport K, McCallum RW. The treatment of idiopathic and diabetic gastroparesis with acute intravenous and chronic oral erythromycin. *Am J Gastroenterol* 1993;88:203-207
101. Curran MP, Robinson DM. Aprepitant: a review of its use in the prevention of nausea and vomiting. *Drugs* 2009;69:1853-1878
102. Allen JH, de Moore GM, Heddle R, Twartz JC. Cannabinoid hyperemesis: cyclical hyperemesis in association with chronic cannabis abuse. *Gut* 2004;53:1566-1570
103. Wang L. Clinical observation on acupuncture treatment in 35 cases of diabetic gastroparesis. *J Tradit Chin Med* 2004;24:163–165
104. Rao AS, Camilleri M. Review article: Metoclopramide and tardive dyskinesia. *Aliment Pharmacol Ther* 2010;31:11-19
105. Abell TL, Bernstein RK, Cutts T, et al. Treatment of gastroparesis: a multidisciplinary clinical review. *Neurogastroenterol Motil* 2006;18:263–283
106. Parkman HP, Hasler WL, Fisher RS. American Gastroenterological Association technical review on the diagnosis and treatment of gastroparesis. *Gastroenterology* 2004;127:1592–1622
107. Bakker PR, van Harten PN, van Os J. Antipsychotic-induced tardive dyskinesia and the Ser9Gly polymorphism in the DRD3 gene: a metaanalysis. *Schizophr Res* 2006;83:185-192
108. Lencz T, Robinson DG, Xu K, Ekholm J, Sevy S, Gunduz-Bruce H, Woerner MG, Kane JM, Goldman D, Malhotra AK. DRD2 promoter region variation as a predictor of sustained

response to antipsychotic medication in first-episode schizophrenia patients. *Am J Psychiatr* 2006;163:529-531

109. Tardive dyskinesia: summary of a Task Force Report of the American Psychiatric Association. By the Task Force on Late Neurological Effects of Antipsychotic Drugs. *Am J Psychiatry*. 1980; 137:1163-72.

110. Fass R, Pieniaszek HJ, Thompson JR. Pharmacokinetic comparison of orally-disintegrating metoclopramide with conventional metoclopramide tablet formulation in healthy volunteers. *Aliment Pharmacol Ther* 2009;30:301-306

111. Reddymasu SC, Soykan I, McCallum RW. Domperidone: review of pharmacology and clinical applications in gastroenterology. *Am J Gastroenterol* 2007;102:2036-2045

112. Moshiree B, McDonald R, Hou W, Toskes PP. Comparison of the effect of azithromycin versus erythromycin on antroduodenal pressure profiles of patients with chronic functional gastrointestinal pain and gastroparesis. *Dig Dis Sci* 2010;55:675-683

113. Ejsskjaer N, Vestergaard ET, Hellström PM, Gormsen LC, Madsbad S, Madsen JL, Jensen TA, Pezzullo JC, Christiansen JS, Shaughnessy L, Kosutic G. Ghrelin receptor agonist (TZP-101) accelerates gastric emptying in adults with diabetes and symptomatic gastroparesis. *Aliment Pharmacol Ther* 2009;29:1179-1187

114. Ejsskjaer N, Dimcevski G, Wo J, Hellström PM, Gormsen LC, Sarosiek I, Søfteland E, Nowak T, Pezzullo JC, Shaughnessy L, Kosutic G, McCallum R. Safety and efficacy of ghrelin agonist TZP-101 in relieving symptoms in patients with diabetic gastroparesis: a randomized, placebo-controlled study. *Neurogastroenterol Motil* 2010 Jun 1. [Epub ahead of print]

115. Murray CD, Martin NM, Patterson M, Taylor SA, Ghatei MA, Kamm MA, Johnston C, Bloom SR, Emmanuel AV. Ghrelin enhances gastric emptying in diabetic gastroparesis: a double blind, placebo controlled, crossover study. *Gut* 2005;54:1693-1698
116. Ang D, Nicolai H, Vos R, Mimidis K, Akyuz F, Kindt S, Vanden Berghe P, Sifrim D, Depoortere I, Peeters T, Tack J. Influence of ghrelin on the gastric accommodation reflex and on meal-induced satiety in man. *Neurogastroenterol Motil* 2009;21:528-533
117. Sanger GJ, Westaway SM, Barnes AA, Macpherson DT, Muir AI, Jarvie EM, Bolton VN, Celtek S, Näslund E, Hellström PM, Borman RA, Unsworth WP, Matthews KL, Lee K. GSK962040: a small molecule, selective motilin receptor agonist, effective as a stimulant of human and rabbit gastrointestinal motility. *Neurogastroenterol Motil* 2009;21:657-664
118. Dukes GE, Barton M, Dewit O, Stephens K, Vasist L, Young M, Richards D, Alpers D, Williams P. Safety/tolerability, pharmacokinetics (PK), and effect on gastric emptying (GE) with 14-days repeat oral dosing of the motilin receptor agonist, GSK962040, in healthy male and female volunteers. *Neurogastroenterology and Motility Meeting, Boston, MA, August 26-29, 2010*
119. Takahashi N, Koba N, Yamamoto T, Sudo M. Characterization of a novel, potent, and selective small molecule motilin receptor agonist, RQ-00201894. *Gastroenterology* 2010;138:W1390
120. Bouras EP, Camilleri M, Burton DD, et al. Prucalopride accelerates gastrointestinal and colonic transit in patients with constipation without a rectal evacuation disorder. *Gastroenterology* 2001;120:354-360
121. Manini ML, Camilleri M, Goldberg M, Sweetser S, McKinzie S, Burton D, Wong S, Kitt MM, Li Y-P, Zinsmeister AR. Effects of velusetrag (TD-5108) on gastrointestinal transit and

bowel function in health and pharmacokinetics in health and constipation. *Neurogastroenterol Motil* 2010;22:42-49, e7-8

122. Camilleri M, Vazquez-Roque MI, Burton D, Ford T, McKinzie S, Zinsmeister AR, Druzgala P. Pharmacodynamic effects of a novel prokinetic 5-HT receptor agonist, ATI-7505, in humans. *Neurogastroenterol Motil* 2007;19:30-38

123. Arts J, Holvoet L, Caenepeel P, Bisschops R, Sifrim D, Verbeke K, Janssens J, Tack J. Clinical trial: a randomized-controlled crossover study of intrapyloric injection of botulinum toxin in gastroparesis. *Aliment Pharmacol Ther* 2007;26:1251-1258

124. Friedenberg FK, Palit A, Parkman HP, Hanlon A, Nelson DB. Botulinum toxin A for the treatment of delayed gastric emptying. *Am J Gastroenterol* 2008;103:416-423

125. McCallum R, Snape WJ Jr., Wo JM, Brody FJ, Parkman HP, Nowak TV, Lerew DR, Ruehlow L. Enterra® gastric electrical stimulation for idiopathic gastroparesis: results from a multicenter randomized study. *Gastroenterology* 2010;138:1065 (abstract)

126. Reddymasu SC, Sarosiek I, McCallum RW. Severe gastroparesis: medical therapy or gastric electrical stimulation. *Clin Gastroenterol Hepatol* 2010;8:117-124

127. McCallum RW, Dusing RW, Sarosiek I, Cocjin J, Forster J, Lin Z. Mechanisms of symptomatic improvement after gastric electrical stimulation in gastroparetic patients.

Neurogastroenterol Motil 2010;22:161-167

128. Sarosiek I, Forster J, Roeser K, Sarosiek J, McCallum R. The results of two-channel, synchronized, multipoint gastric electrical pacing effect on gastric emptying in patients with severe diabetic gastroparesis. *Gastroenterology* 2009;136:A780

129. Ayinala S, Batista O, Goyal A, Al-Juburi A, Abidi N, Familoni B, Abell T. Temporary gastric electrical stimulation with orally or PEG-placed electrodes in patients with drug refractory gastroparesis. *Gastrointest Endosc* 2005;61:455-461
130. Siddaiah N, Runnels JM, Runnels M, Schmiegl R, Salameh JR, Johnson W, Abell TL. Mucosal EGG, performed endoscopically, predicts response to temporary and permanent GES in gastroparetic patients. *Gastroenterology* 2009;136:A468
131. O'Grady G, Du P, Lammers WJ, Egbuji JU, Mithraratne P, Chen JD, Cheng LK, Windsor JA, Pullan AJ. High-resolution entrainment mapping of gastric pacing: a new analytical tool. *Am J Physiol* 2010;298:G314-G321
132. Pitt HA, Mann LL, Berquist WE, Ament ME, Fonkalsrud EW, DenBesten L. Chronic intestinal pseudo-obstruction. Management with total parenteral nutrition and a venting enterostomy. *Arch Surg* 1985;120:614-618
133. Murr MM, Sarr MG, Camilleri M. The surgeon's role in the treatment of chronic intestinal pseudoobstruction. *Am J Gastroenterol* 1995;90:2147-2151
134. Kim CH, Nelson DK. Venting percutaneous gastrostomy in the treatment of refractory idiopathic gastroparesis. *Gastrointest Endosc* 1998;47:67-70
135. Karlstrom L, Kelly KA. Roux-Y gastrectomy for chronic gastric atony. *Am J Surg* 1989;157:44-49
136. Forstner-Barthell AW, Murr MM, Nitecki S, Camilleri M, Prather CM, Kelly KA, Sarr MG. Near-total completion gastrectomy for severe postvagotomy gastric stasis: analysis of early and long-term results in 62 patients. *J Gastrointest Surg* 1999;3:15-21
137. Watkins PJ, Buxton-Thomas MS, Howard ER. Long-term outcome after gastrectomy for intractable diabetic gastroparesis. *Diabet Med* 2003;20:58-63

138. Micci MA, Kahrig KM, Simmons RS, Sarna SK, Espejo-Navarro MR, Pasricha PJ. Neural stem cell transplantation in the stomach rescues gastric function in neuronal nitric oxide synthase-deficient mice. *Gastroenterology* 2005;129:1817-1824
139. Ordög T, Hayashi Y, Gibbons SJ. Cellular pathogenesis of diabetic gastroenteropathy. *Minerva Gastroenterol Dietol* 2009;55:315-343
140. Blackburn NA, Redfern JS, Jarjis H, Holgate AM, Hanning I, Scarpello JH, Johnson IT, Read NW. The mechanism of action of guar gum in improving glucose tolerance in man. *Clin Sci* 1984;66:329-336
141. Ray TK, Mansell KM, Knight LC, Malmud LS, Owen OE, Boden G. Long-term effects of dietary fiber on glucose tolerance and gastric emptying in noninsulin-dependent diabetic patients. *Am J Clin Nutr* 1983;37:376-381
142. Schwartz SE, Levine RA, Weinstock RS, Petokas S, Mills CA, Thomas FD. Sustained pectin ingestion: effect on gastric emptying and glucose tolerance in non-insulin-dependent diabetic patients. *Am J Clin Nutr* 1988;48:1413-1417
143. Leeds AR, Ralphs DN, Ebied F, Metz G, Dilawari JB. Pectin in the dumping syndrome: reduction of symptoms and plasma volume changes. *Lancet* 1981;1:1075-1078
144. Darwiche G, Bjorgell O, Almer L-O. The addition of locust bean gum but not water delayed the gastric emptying rate of a nutrient semisolid meal in healthy subjects. *BMC Gastroenterology* 2003;3:12-18
145. Linnebjerg H, Park S, Kothare PA, Trautmann ME, Mace K, Fineman M, Wilding I, Nauck M, Horowitz M. Effect of exenatide on gastric emptying and relationship to postprandial glycemia in type 2 diabetes. *Regul Peptides* 2008;151:123-129

146. Foxx-Orenstein A, Camilleri M, Stephens D, Burton D. Effect of a somatostatin analogue on gastric motor and sensory functions in healthy humans. *Gut* 2003;52:1555-1561
147. Arts J, Caenepeel P, Bisschops R, Dewulf D, Holvoet L, Piessevaux H, Bourgeois S, Sifrim D, Janssens J, Tack J. Efficacy of the long-acting repeatable formulation of the somatostatin analogue octreotide in postoperative dumping. *Clin Gastroenterol Hepatol* 2009;7:432-437
148. Tack J, Arts J, Caenepeel P, De Wulf D, Bisschops R. Pathophysiology, diagnosis and management of postoperative dumping syndrome. *Nat Rev Gastroenterol Hepatol* 2009;6:583-590
149. <http://www.fda.gov/ForIndustry/DevelopingProductsforRareDiseasesConditions/Overview/ucm119477.htm>, accessed May 15, 2010
150. <http://www.census.gov>, accessed May 15, 2010