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POLICY LAST UPDATED: 12/06/2016

OVERVIEW

This policy documents the coverage criteria for Islet Cell Transplantation. Autologous islet transplantation, performed in conjunction with pancreatectomy, is proposed to reduce the likelihood of insulin dependent diabetes. Moreover, allogeneic islet cell transplantation is being investigated as a treatment or cure for patients with type 1 diabetes.

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

Autologous Islet Transplantation:

BlueCHiP for Medicare and Commercial Products

Autologous pancreas islet transplantation is considered medically necessary as an adjunct to a total or near total pancreatectomy in members with chronic pancreatitis. Islet transplantation is considered not medically necessary in all other situations as there is insufficient peer-reviewed scientific literature that demonstrates that the procedure is effective.

Allogeneic Islet Transplantation:

BlueCHiP for Medicare

Allogeneic Pancreatic islet cell transplantation is covered for BlueCHiP for Medicare members only as part of an approved clinical trial. Refer to Related Policy section.

Commercial Products

Allogeneic islet transplantation is considered **not covered** for the treatment of type 1 diabetes as there is no FDA approval for this indication.

MEDICAL CRITERIA

Not applicable

BACKGROUND

Pancreatectomy is utilized in the treatment of patients with chronic pancreatitis. Autologous islet transplantation, performed in conjunction with pancreatectomy, is proposed for chronic pancreatitis patients. Allogeneic islet transplantation is proposed for selected patients with type 1 diabetes.

In autologous islet transplantation, during the pancreatectomy procedure, islet cells are isolated from the resected pancreas using enzymes, and a suspension of the cells is injected into the portal vein of the patient's liver. Once implanted, the beta cells in these islets begin to make and release insulin. In the case of allogeneic islet cell transplantation, cells are harvested from the deceased donor's pancreas, processed, and injected into the recipient's portal vein. Up to 3 donor pancreas transplants may be required to achieve insulin independence. Allogeneic transplantation may be performed in the radiology department.

Chronic Pancreatitis

Primary risk factors for chronic pancreatitis include toxic-metabolic, idiopathic, genetic, autoimmune, recurrent and severe acute pancreatitis, or obstructive (the TIGAR-O classification system). Patients with chronic pancreatitis may experience intractable pain that can only be relieved with a total or near total pancreatectomy. However, the pain relief must be balanced against the certainty that the patient will be rendered an insulin-dependent diabetic. Autologous islet transplantation has been investigated as a technique to prevent this serious morbidity.

Type 1 Diabetes

Allogeneic islet transplantation has been used for type 1 diabetes to restore normoglycemia and, ultimately, reduce or eliminate the long-term complications of diabetes such as retinopathy, neuropathy, nephropathy, and cardiovascular disease. Islet transplantation potentially offers an alternative to whole-organ pancreas transplantation. However, a limitation of islet transplantation is that 2 or more donor organs are usually required for successful transplantation, although experimentation with single-donor transplantation is occurring. A pancreas that is rejected for whole-organ transplant is typically used for islet transplantation. Therefore, islet transplantation has generally been reserved for patients with frequent and severe metabolic complications who have consistently failed to achieve control with insulin-based management.

Islet cells are subject to regulation by the U.S. Food and Drug Administration (FDA), which classifies allogeneic islet cell transplantation as somatic cell therapy, requiring premarket approval. Islet cells also meet the definition of a drug under the federal Food, Drug, and Cosmetic Act. Clinical studies to determine safety and effectiveness outcomes of allogeneic islet transplantation must be conducted under FDA investigational new drug (IND) regulation. While at least 35 IND applications have been submitted to the FDA, no center has submitted a biologics license application.

Autologous islet transplantation is proposed in conjunction with pancreatectomy for patients with chronic pancreatitis. Although the published experience with autologous islet cell transplantation is limited, the procedure appears to significantly decrease the incidence of diabetes after total or near total pancreatectomy in patients with chronic pancreatitis. In addition, this procedure is not associated with serious complications itself and is performed as an adjunct to the pancreatectomy procedure. Thus, this may be considered medically necessary.

The techniques for allogeneic islet cell transplants are evolving, and the impact on net health outcomes is still uncertain. Moreover, longer follow-up with larger numbers of patients is needed before conclusions can be drawn about the safety of allogeneic islet transplantation and its impact on diabetes mellitus and associated complications. Thus, allogeneic islet cell transplants are considered not medically necessary as there is no proven efficacy.

Guidance from the National Institute for Clinical Excellence (NICE), published in 2008, states that the evidence on allogeneic pancreatic islet cell transplantation for type 1 diabetes mellitus shows short-term efficacy with some evidence of long-term efficacy. Evidence on safety shows that serious complications may occur, and the long-term immunosuppression required is also associated with risk of adverse events. The procedure is particularly indicated for patients with hypoglycemia unawareness or those already on immunosuppressive therapy because of renal transplantation. A 2008 update of guidance on autologous islet cell transplantation for improved glycemic control after pancreatectomy states that studies show some short-term efficacy, although most patients require insulin therapy in the long term. Complications mainly result from the major surgery involved in pancreatectomy rather than from the islet cell transplantation.

Effective October 1, 2004, Medicare will cover pancreatic islet transplantation in patients with type 1 diabetes participating in the context of a clinical trial sponsored by the National Institutes of Health. Partial pancreatic tissue transplantation or islet transplantation performed outside the context of a clinical trial will continue to not be covered.

COVERAGE

Benefits may vary between groups/contracts. Please refer to the appropriate Benefit Booklet, Evidence of Coverage or Subscriber Agreement, for applicable not medically necessary/transplant surgery/experimental/investigational benefits/coverage.

CODING

BlueCHiP for Medicare and Commercial Products

The following code is covered with a diagnosis of chronic pancreatitis:

48160

The following code is reported for pancreatic islet cell transplantation and laparoscopy:

48999

ICD-10 Diagnosis Code

K86.1

RELATED POLICIES

Clinical Trials BlueCHiP for Medicare

BlueCHiP for Medicare National and Local Coverage Determinations

PUBLISHED

Provider Update January 2017

Provider Update April 2015

Provider Update November 2014

Provider Update September 2013

Provider Update September 2012

Provider Update September 2011

Provider Update December 2010

Provider Update July 2009

Provider Update June 2008

REFERENCES

1. Bramis K, Gordon-Weeks AN, Friend PJ et al. Systematic review of total pancreatectomy and islet autotransplantation for chronic pancreatitis. *The British journal of surgery* 2012; 99(6):761-6.
2. Dong M, Parsaik AK, Erwin PJ et al. Systematic review and meta-analysis: islet autotransplantation after pancreatectomy for minimizing diabetes. *Clinical endocrinology* 2011; 75(6):771-9.
3. Sutherland DE, Radosevich DM, Bellin MD et al. Total pancreatectomy and islet autotransplantation for chronic pancreatitis. *Journal of the American College of Surgeons* 2012; 214(4):409-24.
4. Chinnakotla S, Radosevich DM, Dunn TB et al. Long-term outcomes of total pancreatectomy and islet auto transplantation for hereditary/genetic pancreatitis. *J Am Coll Surg* 2014; 218(4):530-43.
5. Rickels MR, Kong SM, Fuller C et al. Improvement in insulin sensitivity after human islet transplantation for type 1 diabetes. *J Clin Endocrinol Metab* 2013; 98(11):E1780-5.
6. O'Connell PJ, Holmes-Walker DJ, Goodman D et al. Multicenter Australian trial of islet transplantation: improving accessibility and outcomes. *Am J Transplant* 2013; 13(7):1850-8.

7. Sponsored by University Hospital Grenoble. Trial Comparing Metabolic Efficiency of Islet Graft to Intensive Insulin Therapy for Type 1 Diabetes's Treatment (TRIMECO) (NCT01148680). Available online at: www.clinicaltrials.gov. Last accessed March, 2014.
8. Centers for Medicare and Medicaid Services (CMS). National Coverage Determination (NCD) for pancreas Transplants (260.3). Effective 4/26/2006. Available online at: <http://www.cms.gov/medicare-coverage-database/overview-and-quicksearch.aspx?clickon=search>. Last accessed March, 2014.
9. Webb MA, Illouz SC, Pollard CA et al. Islet auto transplantation following total pancreatectomy: a long-term assessment of graft function. *Pancreas* 2008; 37(3):282-7.
10. Alejandro R, Barton FB, Hering BJ et al. 2008 Update from the Collaborative Islet Transplant Registry. *Transplantation* 2008; 86(12):1783-8.
11. Wu Q, Zhang M, Qin Y, et al. Systematic review and meta-analysis of islet autotransplantation after total pancreatectomy in chronic pancreatitis patients [Review]. *Endocr J.* Mar 30 2015;62(3): 227-234. PMID 25735805
12. Wilson GC, Sutton JM, Abbott DE, et al. Long-term outcomes after total pancreatectomy and islet cell autotransplantation: is it a durable operation? *Ann Surg.* Oct 2014;260(4):659-665; discussion 665-657. PMID 25203883
13. U.S. Dept of Health and Human Services (HHS) Food and Drug Administration (FDA). Guidance for Industry: Considerations for Allogeneic Pancreatic Islet Cell Prodcuts. 2009; <http://www.fda.gov/downloads/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Guidances/CellularandGeneTherapy/UCM182441.pdf>. Accessed April 17, 2015
14. Caiazzo R, Vantighem MC, Raverdi V, et al. Impact of Procedure-Related Complications on Long-Term Islet Transplantation Outcome. *Transplantation.* Nov 12 2014. PMID 25393157

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