Brain Tissue Transplantation or Neurotransplantation is considered experimental or investigational for Parkinson’s disease, performed using one of the following surgical procedures:

- Fetal Adrenal – to – Brain Autotransplantation,
- Fetal Adrenal – to – Brain Allograft Transplantation, and
- Fetal Mesencephalic Transplantation

Performing a xenotransplantation/heterotransplantation graft transplantation between different species such as fetal porcine/swine (pig) brain cells is considered experimental or investigational for the treatment of Parkinson’s disease.

Description:

Brain Tissue Transplantation or Neurotransplantation is performed to restore the dopamine activity in the corpus striatum in an effort to reverse the chemical abnormality in Parkinson’s disease. This is a transplantation of either donor adrenal medulla tissue (auto-derived or fetal allograft) or fetal mesencephalic tissue into the corpus striatum or caudate nucleus of the recipient’s brain.

Parkinson’s disease is a chronic, progressive neurodegenerative disease, which includes these four characteristics:

- Poor strength and slowness of movement.
- Postural instability,
- Muscular rigidity, and
- Resting tremor.

The condition usually appears after age 40, and progresses slowly over many years. Pharmacologic treatment with Levodopa while generally providing excellent symptomatic relief early in the course of the disease, does not halt disease progression. Most patients with Parkinson’s disease, after 5 – 10 years of pharmacologic therapy, experience a progressive loss of benefit from levodopa. Eventually, more dopaminergic cells die, leaving only a few cells. Patients then experience motor fluctuations such as sudden shifts from the “on” state, during which the effect of levodopa facilitates motor control, to an immobile “off” state, during which the patient may suddenly become rigid, unable to walk, or even akinetic or “frozen. None of these symptoms can be expected to resolve spontaneously with continued pharmacologic treatment. Various other therapeutic approaches are
BRAIN TISSUE TRANSPLANTATION/NEUROTHERAPY FOR TREATMENT OF PARKINSON’S DISEASE (FETAL ALLOGRAFT OR AUTOTRANSPLANTATION)
SUR703.003
BlueReview POSTED DATE: 11/17/2003
EFFECTIVE DATE: 10/24/2003

being studied.

- Autotransplantation - entails simultaneous adrenalectomy and craniotomy with subsequent implantation of adrenal medullary tissue. Adrenal tissue is implanted in fragments into the caudate nucleus and/or putamen at the margin of the lateral ventricle of the brain and exposed to cerebrospinal fluid.

- Allografting – involves harvesting adrenal tissue or mesencephalic tissue from an aborted fetus. Surgical technique for the fetal adrenal tissue is the same as autotransplantation with the exception of the adrenalectomy.

- Xenografting – Heterografting - Transplantation between members of different species (e.g., brain cells from a fetal pig or monkey to a human recipient).

RATIONALE:

The adrenal medulla has been used in various studies, as a cell transplant source because of the capacity of adrenal cells to produce catecholamines and to transform into a neuronal phenotype.

Most of the studies of this cellular based surgical procedure are uncontrolled open trials. There is one randomized controlled trial. This double-blind trial reports clinical outcomes and data for 33 patients who ultimately received transplants.

Clinical outcomes among patients in the randomized control trial were variable, moderate in magnitude, and were in part affected by age. Longer follow-up of patients during an open label extension of the trial revealed late serious outcomes, including dystonia and disabling dyskinesia that persisted even after reduction or elimination of levadopa, despite an improvement in symptoms during the first year after surgery.

At this time, there is no way to separate the benefits of embryonic mesencephalic transplantation from the risks.

Because of the variability in the risk of severe dyskinesia and dystonia unresponsive to withdrawal of dopamine-agonist medication, the evidence does not support the conclusion that transplantation of embryonic dopamine neurons improve the long term health outcomes for patients with Parkinson’s disease.
BRAIN TISSUE TRANSPLANTATION/NEUROTANSPLANTATION FOR TREATMENT OF PARKINSON’S DISEASE (FETAL ALLOGRAFT OR AUTOTRANSPLANTATION)

SUR703.003

BlueReview POSTED DATE: 11/17/2003
EFFECTIVE DATE: 10/24/2003

PRICING:
None

REFERENCES:


BRAIN TISSUE TRANSPLANTATION/NEUROTRANSPLANTATION FOR TREATMENT OF PARKINSON’S DISEASE (FETAL ALLOGRAFT OR AUTOTRANSPLANTATION)

SUR703.003
BlueReview POSTED DATE: 11/17/2003
EFFECTIVE DATE: 10/24/2003


DISCLAIMER:
State and federal law, as well as contract language, including definitions and specific inclusions/exclusions, takes precedence over Medical Policy and must be considered first in determining coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Any benefits are subject to the payment of premiums for the date on which services are rendered. Medical
technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.
HMO Blue Texas physicians who are contracted/affiliated with a capitated IPA/medical group must contact the IPA/medical group for information regarding HMO claims/reimbursement information and other general polices and procedures.