

Plasma From Young Donors And The Reversal Of Parkinson's Disease

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Understanding and reversing Parkinson's disease (PD) has evaded medicine since 1817 when James Parkinson described this unusual group of symptoms. Early treatments were attempted after observations over time illustrated a degenerative process. Once the discovery of dopaminergic deficits causing Parkinson's disease and the understanding that symptoms occurred via dysfunction in the pathway of dopamine synthesis, the first human trials of levodopa began. [1]

A common feature of PD and dementias is chronic neuroinflammation, mitochondrial dysfunction and oxidative stress. [2-4] Neuromelanin synthesis is a protective antioxidant mechanism in the brain to remove potentially toxic oxidized byproducts in the substantia nigra. The protective mechanism can be overburdened as toxic load becomes unsustainable for the cell. Alpha-synuclein and Lewy bodies build up, destroying its proteostasis, mitochondrial function and overall ability to survive. Eventually enough of the dopaminergic neurons in the substantia nigra will die and PD symptoms will develop.

Preclinical and clinical research have recently accumulated evidence that the plasma of younger individuals appears to contain rejuvenating properties that can have an impact on degenerative disease. Casellano et al., stated, "We and others recently provided evidence that age-related changes in the blood regulate brain function, raising the possibility that CNS function can be shaped throughout aging by the combined influence of peripheral organ systems via circulatory factors or changes at the interface of communication between these compartments." [5] Young factors spread into dysfunctional organs can help them regain function. [6]

The safety of transfusions with plasma from young donors is already established. The American Red Cross estimates 6,500 units of plasma are used daily in the United States. [7] An estimated 19.8% of blood donations came from the age group 16-24 years, and transfusions have had an excellent safety record. [8-10] Stanford University using plasma from young donors with Alzheimer's patients found similar results. The University's research moved to applying these concepts to help treat Parkinson's disease. [11,12]

We have now found the application of young Fresh Frozen Plasma (yFFP®) to Parkinson's disease patients to be a safe and beneficial treatment. In a phase I trial in the Texas Medical Center successful results were seen with yFFP when prescribed for patients with Parkinson's disease. [13, 14]

Key points of the yFFP study:

This was a preliminary, non-randomized (patients were allocated to each group depending on the availability of plasma matching their blood type) placebo-controlled trial to explore whether transfusions of plasma from young donors could slow or ameliorate the symptoms of mild to moderate Parkinson's disease.

Out of an enrollment of 22 patients, 17 completed the trial. Consecutive patients were allocated to receive either two transfusions of masked saline as the placebo, or two transfusions of masked plasma from young donors (yFFP) supplied by Spectrum Plasma, Inc.

Over the following six months, patients were evaluated for the outcome measures: a modified UPDRS scale, and the SPS-6 presenteeism scale.

Patients who had received the yFFP did better on the outcome measures than those who received the placebo. The comparison was statistically significant for the sum of UPDRS subscales 1-3, and for the SPS-6 scale.

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- [5] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4224436/>
- [6] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4867550/>
- [7] US Blood Supply Facts: <https://www.redcrossblood.org/donate-blood/how-to-donate/how-blood-donations-help/blood-needs-blood-supply.html#:~:text=Facts>
- [8] Mowla SJ, Sapiano MRP, Jones JM, Berger JJ, Basavaraju S V. Supplemental findings of the 2019 National Blood Collection and Utilization Survey. *Transfusion* 2021;61. <https://doi.org/10.1111/trf.16606>
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- [11] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6439869>
- [12] <https://pubmed.ncbi.nlm.nih.gov/32633860>
- [13] Dian Ginsberg MD, FACOG, ABAARM, Fellowship Metabolic Medical Institute/A4M Advisor Functional Medicine University. Young Plasma Infusions Significantly Improve Clinical Symptoms and UPDRS Scores in Patients with Parkinson’s Disease.
- [14] www.youngplasmastudy.com

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