INTRODUCTION

Trasplantation of neural tissues (including neuronal and glial cells) offers considerable promise for providing new methods of treating a wide range of presently intractable neurodegenerative conditions, as Parkinson's and Huntington's diseases.

ORIGIN OF STEM CELLS FOR TRANSPLANTATION

The use of embryonic/fetal tissues poses, in technical terms, the problem of availability of donors and the search for alternatives.

TRADITIONAL NEUROETHICS ISSUES ON STEM CELLS

An advantageous possibility is offered by the use of xenografts and, more specifically, stem cells of non embryonic/fetal origin. The implementation of stem cells promises even more striking results in the treatment of post-traumatic injuries or cerebrovascular insults of the central nervous system (CNS). On the basis of a more traditional neuroethics perspective, the most relevant issue among these therapeutic options concerns the use of neuronal cells of fetal/embryonic origin, in addition to that of the consensus from the subject to be transplanted. Regarding these issues a large literature exists (Birnbacher 2009).

PARKINSON'S DISEASE: NEUROIMAGING

PARKINSON'S DISEASE: THE PATIENT

PARKINSON'S DISEASE: PATHOLOGY

RECENT AND CHALLENGING NEUROETHICS ISSUES

An exciting and innovative aspect in the field of neuroethics, and yet not investigated, concerns the possibility of verifying whether, once the transplanted tissue (or cells) begin to form new cerebral circuits, this process could in any way affect the cerebral/mental mechanisms that underlie moral choices, ethical judgments and the construction of beliefs (H. Fangerau et al. 2010).

Such developments pose serious dilemmas in regards to the "implanted minds" issue. The application of regenerative medicine to the central nervous system can, in fact, produce new neural networks. How would the patient's personality be influenced by this? Does a neural system containing foreign cells differ from one that does not contain them? Are the transplanted cells involved in a new control of the brain and mind?

THE "ETHICAL BRAIN"

Patients with a transplant of cells and/or brain tissue could thus represent the "natural pattern" in order to analyze, following an informed consent, how such post-transplantation neurobiological alterations might change brain function not only from the perspective of positive clinical results - eliminate or reduce serious medical conditions - but also, in a more speculative way and for a better comprehension, in terms of the activity of the neuronal circuits involved in the construction of the so called "ethical brain".

BIBLIOGRAPHY


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