Intracerebral Administration of Autologous Mesenchymal Stem Cells as HSV-TK Gene Vehicle to Treatment of Glioblastoma: Safety and Feasibility Assessment

Protocol summary

Study aim
Evaluation of safety and feasibility of using bone marrow mesenchymal stem cells containing lentivirus carrying thymidine kinase gene in patients with glioblastoma multiforme.

Design
Uncontrolled phase 1 clinical trial in 5 patients.

Settings and conduct
Five patients with glioblastoma confirmed by two pathologists will be examined in this study. This study does not have a control group and randomization. Patients will be examined every three months until tumor recurrence and death. The study site will be Shohadaye Tajrish Hospital.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Karnofsky performance status > 70. Adequate hematological function (an absolute neutrophil count > 1500/μl and platelet count > 125000/mm3). Adequate renal function (creatinine < 1.5 times the normal). Adequate hepatic function (aspartate aminotransferase and bilirubin < 1.5 times the normal). Patients who fill informed consent. Exclusion criteria: Significant vascular disease. History of recurrent thromboembolism. Prior history of hypertensive crisis or hypertensive encephalopathy. Gastrointestinal fistula or perforation. History of an intraabdominal or intracranial abscess within 6 months. Serious non-healing wound, ulcer and bone fracture.

Intervention groups
Intervention group: This group undergoes gene therapy along with standard treatment (chemotherapy and radiotherapy). From this group of patients, bone marrow stem cells are isolated and brain tumor resection is performed on them. Then 5×10^5 mesenchymal stem cells infected with lentivirus carrying the Thymidine Kinase gene are injected into the evacuated tumor site under the guidance of a brain navigation device. After cell injection, the Ganciclovir drug administration continues for a total of 28 doses over 14 days.

Main outcome variables
Overall survival; progression-free survival.

General information

Reason for update
Acronym
IRCT registration information
IRCT registration number: IRCT20200502047277N2
Registration date: 2020-10-08, 1399/07/17
Registration timing: retrospective

Last update: 2020-10-08, 1399/07/17
Update count: 0

Registration date
2020-10-08, 1399/07/17

Registrant information
Name
saeed oraee yazdani
Name of organization / entity
Country
Iran (Islamic Republic of)
Phone
+98 21 25719
Email address
saeed_o_yazdani@sbmu.ac.ir

Recruitment status
Recruitment complete
Funding source

Expected recruitment start date
2017-12-11, 1396/09/20
Expected recruitment end date
2020-09-05, 1399/06/15
Actual recruitment start date
Intracerebral Administration of Autologous Mesenchymal Stem Cells as HSV-TK Gene Vehicle to Treatment of Glioblastoma: Safety and Feasibility Assessment

Evaluation of the safety and feasibility of stem cell-mediated gene therapy in the treatment of glioblastoma

Inclusion/Exclusion criteria:

Inclusion criteria:
- Karnofsky performance status > 70.
- Adequate hematological function (an absolute neutrophil count > 1500/μl and platelet count > 125000/mm3).
- Adequate renal function (creatinine < 1.5 times the normal).
- Adequate hepatic function (aspartate aminotransferase and bilirubin < 1.5 times the normal).
- Patient who fill informed consent.

Exclusion criteria:
- Significant vascular disease.
- History of recurrent thromboembolism.
- Prior history of hypertensive crisis or hypertensive encephalopathy.
- Gastrointestinal fistula or perforation.
- History of intraabdominal or intracranial abscess within 6 months.
- Serious non healing wound, ulcer and bone fracture.

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
- Karnofsky performance status > 70.
- Adequate hematological function (an absolute neutrophil count > 1500/μl and platelet count > 125000/mm3).
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- Adequate hepatic function (aspartate aminotransferase and bilirubin < 1.5 times the normal).
- Patient who fill informed consent.

Exclusion criteria:
- Significant vascular disease. History of recurrent thromboembolism. Prior history of hypertensive crisis or hypertensive encephalopathy. Gastrointestinal fistula or perforation. History of intraabdominal or intracranial abscess within 6 months. Serious non healing wound, ulcer and bone fracture.

Age
- No age limit

Gender
- Both

Phase
- 1

Groups that have been masked
- No information

Sample size
- Target sample size: 8
- Actual sample size reached: 5

Randomization (investigator's opinion)
- N/A

Randomization description
- Not blinded

Blinding (investigator's opinion)
- Not blinded

Blinding description
- Not used

Placebo
- Not used

Assignment
- Single

Other design features
- Secondary Ids
  - empty

Ethics committees
- 1

Ethics committee
- Name of ethics committee
  - Ethics committee of Vice-Chancellor in Research Affairs - Shahid Beheshti University of Medical Scie

Street address
- 7th Floor, Building Number. 2, Shahid Beheshti University of Medical Sciences, Arbei Avenue, Daneshjoo Boulevard, Velenjak, Tehran, Iran.

City
- Tehran

Province
- Tehran

Postal code
- 1989934148

Approval date
- 2017-06-07, 1396/03/17

Ethics committee reference number
- IR.SBMU.REC.1396.224

Health conditions studied
- 1

Description of health condition studied
- Gioma grade 4

ICD-10 code
- C71

ICD-10 code description
- Malignant neoplasm of brain

Primary outcomes
- 1

Description
- Overall survival (OS) of patients

Timepoint
- Before treatment and every three months until the patient's death

Method of measurement
- The time from treatment initiation until patient's death

Secondary outcomes
- empty

Intervention groups
Description
Intervention group: This group undergoes gene therapy along with standard treatment (chemotherapy and radiotherapy). From this group of patients, bone marrow stem cells are isolated and brain tumor resection is performed on them. Then $5 \times 10^5$ mesenchymal stem cells infected with lentivirus carrying the Thymidine Kinase gene are injected into the evacuated tumor site under the guidance of a brain navigation device. After cell injection, the Ganciclovir drug administration continues for a total of 28 doses over 14 days.

Category
Treatment - Other

Recruitment centers

1
Recruitment center
Name of recruitment center
Shohadaye Tajrish Hospital
Full name of responsible person
Saeed Oraee Yazdani
Street address
Shohadaye Tajrish hospital, Tajrish Square.
City
Tehran
Province
Tehran
Postal code
1989934148
Phone
+98 21 25719
Email
Saeed_o_yazdani@yahoo.com

Sponsors / Funding sources

1
Sponsor
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Afshin Zarghi
Street address
7th Floor, Building Number. 2, Shahid Beheshti University of Medical Sciences, Arabi Avenue, Daneshjoo Boulevard, Velenjak, Tehran, Iran.
City
Tehran
Province
Tehran
Postal code
1989934148
Phone
+98 21 2243 9770
Email
Mpajouhesh@sbmu.ac.ir
Grant name

Person responsible for general inquiries

Contact
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Saeed Oraee Yazdani
Position
Assistant professor
Latest degree
Specialist
Other areas of specialty/work
Neurosurgery
Street address
Shohadaye Tajrish Hospital, Tajrish Ave.
City
Tehran
Province
Tehran
Postal code
1989934148
Phone
+98 21 25719
Email
Saeed_o_yazdani@yahoo.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Tarbiat Modares University
Full name of responsible person
Masoud Soleimani
Position
Professor
Latest degree
Ph.D.
Other areas of specialty/work
Cell Therapy and Hematology
Street address
Tarbiat Modares University, Jalal AleAhmad Highway
City
Tehran
Province
Tehran
Postal code
1411713116
Phone
+98 21 8288 4508
Email
soleim_m@modares.ac.ir

Person responsible for updating data
Contact
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Mohammadhossein Akhlaghpasand
Position
Research Associate
Latest degree
Medical doctor
Other areas of specialty/work
Neuroscience
Street address
19899, Shahrdari St, Tehran, Tehran Province, Iran.
City
Tehran
Province
Tehran
Postal code
1989934148
Phone
+98 919 844 5400
Email
akhlaghpasandm@yahoo.com

Sharing plan
Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available

Study Protocol
No - There is not a plan to make this available

Statistical Analysis Plan
Yes - There is a plan to make this available

Informed Consent Form
No - There is not a plan to make this available

Clinical Study Report
No - There is not a plan to make this available

Analytic Code
No - There is not a plan to make this available

Data Dictionary
No - There is not a plan to make this available

Title and more details about the data/document
through email request

When the data will become available and for how long
12 month

To whom data/document is available
Principal investigator of other clinical trials

Under which criteria data/document could be used
official request

From where data/document is obtainable
direct request to email

What processes are involved for a request to access data/document
evaluation of the validity of the applicant

Comments