Trial Description

Title

**GLIAA-Pilot: Amino-acid PET versus MRI guided tumor volume delineation followed by re-irradiation in patients with recurrent glioblastoma multiforme
- A feasibility trial**

Trial Acronym

GLIAA-Pilot

URL of the trial

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Brief Summary in Lay Language

**Scientists at the divisions of radio-oncology, nuclear medicine and medical oncolgy are collaborating in the GLIAA-Clinical Trial on optimizing the treatment of brain tumors and especially of Glioblastomas (Glioblastoma multiforme).
For the tumor volume delineation for radiotherapy treatment two different imaging methods are used: 1) Gadolinium contrast enhanced T1 weighted Magnetic Resonance Imaging (T1Gd-MRI) and 2) Amino-acid positron emission tomography (AA-PET) with [methyl-11C]-L-methionine (MET) or O-(2-[18F]) fluoroethyl)-L-tyrosine (FET).
Both methods allow the differentiation of tumor tissue from normal brain tissue.
The aim of this clinical trials is to evaluate the
difference between AA-PET-based radiotherapy target volumes versus MRI-based radiotherapy target volumes. Additionally the
impact of radiotherapy target volume delineation based on AA-PET on the effect on target volumes and the clinical outcome of patients with recurrent glioblastoma (GBM) will be compared to target volume delineation based on contrast enhanced T1 weighted MRI (T1Gd-MRI).
The goal ist to evaluate the best way to integrate these imaging methods and to optimize radiotherapy treatment based on these results.**

Brief Summary in Scientific Language

**This study is designed to test in patients with recurrent GBM treated with re-irradiation based on Amino-acid positron emission tomography (AA-PET) with O-(2-[18F]) fluoroethyl)-L-tyrosine (FET) and Gadolinium contrast enhanced T1 weighted Magnetic Resonance Imaging (T1Gd-MRI) if a tumor volume delineation based on AA-PET differs from tumor volume delineation based on T1Gd-MRI in a sufficient proportion of patients to justify further research into a comparison of AA-PET versus MRI guided radiotherapy.
All patients will recieve radiotherapy based on both imaging methods, with a fracionation of 5x3Gy per week upt to a total dose of 39Gy.
Primary objective is the volumetrical assessment of delineated gross tumor volume (GTV) based on AAPET vs. delineated GTV based on T1Gd-MRI and its correlation with AA-PET/MRI non-overlap in ml.
As secondary objectives, prospective survival data as well as data on topography**

**of recurrent tumors and radiotherapy toxicities, including radionecrosis, will be collected. New MRI sequences like diffusion and perfusion MRI will be compared with the AA-PET images. A QA program will be established during this trial.
The protocol was resubmitted to the ethics committee Freiburg in May 2012, due to the modification of performing the radiation treatment according to clinical standards an not after randomization (treatment planning based on MRI versus AA-PET) (Amendment 1). The ethics committee Freiburg approved of the modification (Approval 23.05.2012, No. 224/10_120430).**

Do you plan to share individual participant data with other researchers?

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Description IPD sharing plan

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Organizational Data

- DRKS-ID: **DRKS00000633**
- Date of Registration in DRKS: **2010/12/08**
- Date of Registration in Partner Registry or other Primary Registry: **[---]***
- Investigator Sponsored/Initiated Trial (IST/IIT): **yes**
- Ethics Approval/Approval of the Ethics Committee: **Approved**
- (leading) Ethics Committee Nr.: **224/10 , Ethik-Kommission der Albert-Ludwigs-Universität Freiburg**

Secondary IDs

- Universal Trial Number (UTN): **U1111-1118-4662**

Health condition or Problem studied

- ICD10: **C71 - Malignant neoplasm of brain**

Interventions/Observational Groups

- Arm 1: **All patients will recieve the same radiotherapy independent of participation in the study.
Target volume delineation will be based on AA-PET and T1-Gd-MRI: GTV = AA uptake on PET respectively Gd-contrast enhancement on T1-Gd-MRI, clinical target volume (CTV) = GTV + 3mm, PTV = CTV + 2mm followed by high-precision re-irradiation (stereotactic fractionated radiation therapy (SFRT) and/or image guided radiation therapy (IGRT), total dose 39 Gy, 3 Gy/d, 5x/week.**

Characteristics

- Study Type: **Non-interventional**
- Study Type Non-Interventional: **Observational study**
- Allocation: **Single arm study**
- Blinding: **[---]***
- Who is blinded: **[---]***
- Control: **Uncontrolled/Single arm**
- Purpose: **Other**
- Assignment: **Single (group)**
- Phase: **N/A**
- Off-label use (Zulassungsüberschreitende Anwendung eines Arzneimittels): **[---]***

Primary Outcome

**Relevant AA-PET/MRI non-overlap (yes/no), defined as non-overlapping tumor volume of AA-PET and MRI ≥ 2ml.
Let p denote the probability of relevant AA-PET/MRI non-overlap. The study is designed to test the null-hypothesis H0: p ≤ 25% against the alternative hypothesis H1: p > 25% at significance level 5%. This will be done by an exact one-sided binomial test (analysis of the primary endpoint).**

Secondary Outcome

**Progression Free Survival (PFS),
Overall Survival (OS), topography of recurrence,
localization of necrosis after re-irradiation,
comparison of acute and late toxicity.
Impact of diffusion/perfusion MRI on target volume delineation.**

Countries of recruitment

- DE **Germany**

Locations of Recruitment

Recruitment

- Planned/Actual: **Actual**
- (Anticipated or Actual) Date of First Enrollment: **2010/12/12**
- Target Sample Size: **30**
- Monocenter/Multicenter trial: **Monocenter trial**
- National/International: **National**

Inclusion Criteria

- Gender: **Both, male and female**
- Minimum Age: **18 Years**
- Maximum Age: **no maximum age**

Additional Inclusion Criteria

- Local recurrence of Glioma / GBM (WHO grade IV) and either not eligible for tumor resection or with macroscopic residual tumor after resection of recurrent GBM
- Recurrent tumor visible on AA-PET and MRI-T1-Gd with the diameter measuring 1 cm to 6 cm by either technique
- Target volume definition possible according to both study arms
- Previous radiation therapy of the primary with a maximal total dose 60 Gy
- At least 6 months since the end of pre-irradiation and start of re-irradiation
- At most 2 prior chemotherapy regimes
- Start of radiation therapy possible within 3 weeks from AA-PET
- Karnofsky Performance Score (KPS) >60%
- Age ≥ 18 years
- Written informed consent (IC) obtained

Exclusion criteria

- No histological confirmation of GBM
- Recent (≤ 4 weeks before IC) histological result showing no tumor recurrence
- No recurrent tumor detectable on last AA-PET or MRI-T1-Gd
- Technical impossibility to use existing AA-PET for RT-planning
- No prior radiation treatment to the primary tumor
- less than 6 months between the end of first radiation treatment and start of re-irradiation
- more than 2 previous chemotherapy regimes or previous treatment with Avastin or other molecular targeted therapies
- less than 2 weeks between application of chemotherapy and start of re-irradiation
- additional chemotherapy or molecular targeted therapy or further surgery planned before diagnosis of further tumor progression after study intervention
- pregnancy, nursing or patient not willing to prevent pregnancy during treatment

Addresses

■ **Primary Sponsor**

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Sources of Monetary or Material Support

■ **Institutional budget, no external funding (budget of sponsor/PI)**

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Institutional budget, no external funding (budget of sponsor/PI)

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E-mail: **[---]***
URL: **[---]***

Status

- Recruitment Status: **Recruiting complete, follow-up complete**
- Study Closing (LPLV): **2015/06/30**

Trial Publications, Results and other documents

Please note:
There are additional attributes available concerning this trial. To open an extended view please click here.