A broad learning system for ^{18}F-FDG PET/MRI imaging diagnosis in temporal lobe epilepsy patients

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Abstract

This is the abstract.

It consists of two paragraphs.

Keywords: Epilepsy, Broad Learning System, Positron emission tomography, MRI

1. Abstract

China has about 10 million people with epilepsy(Beghi et al., 2019; Ding et al., 2021).

2. Introduction

To develop and validate a radiomics nomogram based on 18F-FDG PET/MRI for individualised seizure prediction after temporal lobe epilepsy surgery.

Approximately half of patients who undergo resective brain surgery for drug-resistant epilepsy have recurrent seizures after surgery(Beghi et al., 2019). China has about 10 million people with epilepsy(Beghi et al., 2019; Ding et al., 2021). Several single predictors have been identified, however, no validated method has been developed to determine a patient's seizure outcome based on their complex clinical characteristics and 18F-FDG PET/MRI radiomics signature(Jehi et al., 2015). The treatment of medically intractable focal epilepsy involves resection of the brain every year. There are probably thousands of others who would benefit from the procedure, but are not referred for surgery. Due to the unpredictability of seizure outcomes after epilepsy surgery, both groups of patients face difficulties.

Radiomics is an emerging method for imaging analysis that uses algorithms or statistical tools to determine phenotypic differences between lesions. Using radiomics features, morphology and function can be sensitively evaluated beyond the naked eye and can provide a great deal of additional information. The radiomics features can provide a great deal of information beyond analysis with the naked eye and can sensitively determine the subtle heterogeneity of the morphology and function on a cellular level, between different parts of the lesions.

The validity of these nomograms in prospective cohort studies could help predict seizure outcomes in patients who are eligible for epilepsy surgery(Cheong et al., 2021; Zhang et al., 2021).

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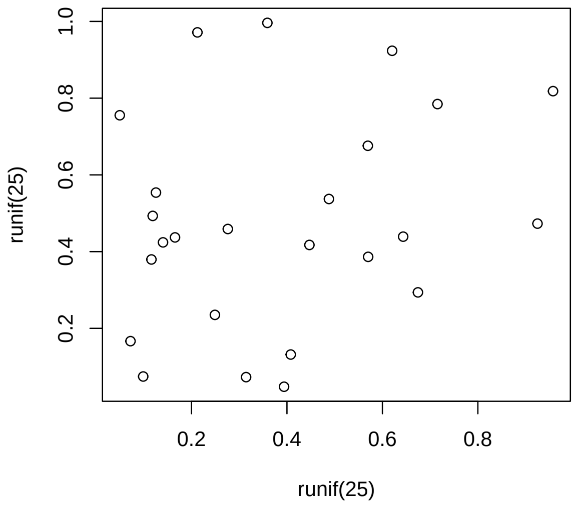

Figure 1: A meaningless scatterplot.

3. Equations

Here is another:

$$AI = c^2. \tag{1}$$

Inline equations: $\sum_{i=2}^{\infty}\{\alpha_i^\beta\}$

4. Figures and tables

Figure 1 is generated using an R chunk.

5. Tables coming from R

Tables can also be generated using R chunks, as shown in Table 1 for example.

```
knitr::kable(head(mtcars)[,1:4],
    caption = "\\label{tab1}Caption centered above table"
)
```

Table 1: Caption centered above table

	mpg	cyl	disp	hp
Mazda RX4	21.0	6	160	110
Mazda RX4 Wag	21.0	6	160	110
Datsun 710	22.8	4	108	93
Hornet 4 Drive	21.4	6	258	110

	mpg	cyl	disp	hp
Hornet Sportabout	18.7	8	360	175
Valiant	18.1	6	225	105

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