Cancer prognosis prediction method

Development of prognostic prediction method with the novel radiomic feature based on graph theory

Transform complex medical imaging information into a simple graph structure

Overview

In recent years, the research field to decode the biological characteristics of lesion (radiomics) by analyzing in global a large number of images extracted from medical image database has attracted attention. One potential application of radiomics is to predict the patient prognosis with tumor disease. However, it is difficult to represent phenotypic information of tumor and local information inside tumor with accuracy, so further progress of this research is required.
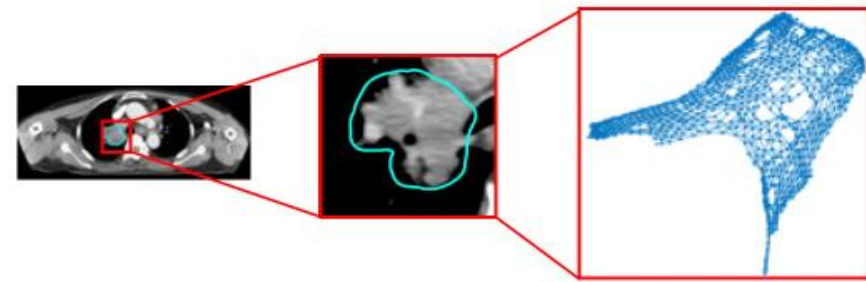
In this invention, inventors have developed a new radiomic feature based on graph theory. Medical image processed by graph theory feature, and tumor image with relatively good prognosis have a smaller line density than those with poor prognosis. Moreover, the rad score calculated by graph theory feature can clearly indicate the tumor status change compared to the value calculated by conventional feature. Therefore, this invention is able to predict the cancer treatment prognosis with higher accuracy than conventional method.

Tumor image processed with graph theory feature and prognostic predictability

Accurate prognosis prediction with visual and numerical information

Product Application

- ☐ Cancer prognosis prediction device, method and program
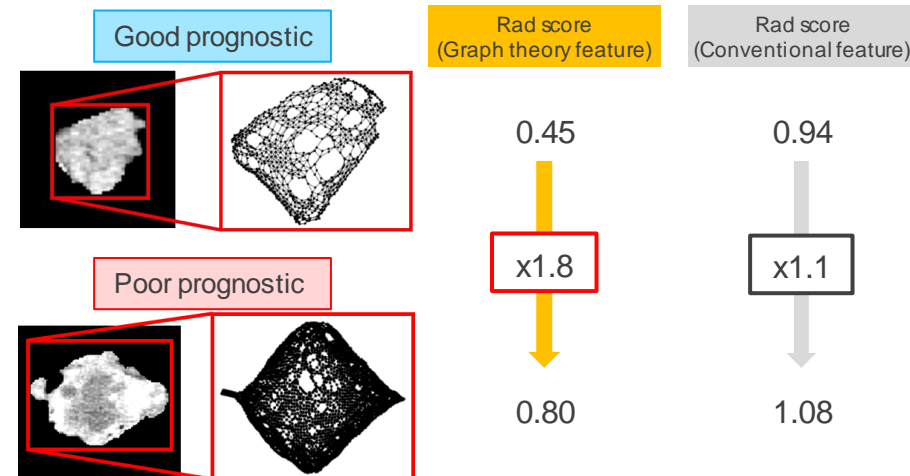- ☐ Radiotherapy planning device, method and program

IP Data

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Related Works

[1] Umeda M, Kadoya N, Tanaka S et al Proceedings of 121st Japan Society of Medical Physics meeting.

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