Abstract

Advances in precision oncology have made genotyping mandatory for most advanced solid tumors to ensure proper therapy selection. However, the innovations remain limited by the realities of patient identification—actionable targets are present in only a small fraction of patients. We initiated a nationwide cancer genome screening project, SCRAM-JAPAN glioma, in the past 10 years. We have achieved high screening rates, and currently, 70% of patients with newly diagnosed glioblastoma have undergone tumor genotyping. However, most patients with glioblastoma do not have actionable targets in their tumors.

The purpose of this lecture is to provide an overview of glioblastoma molecular biology, discuss the current situation and prospects of clinical research, and describe the future directions of treatment.

New treatment methods targeting glioblastoma-specific molecular pathways, such as Tumor Treating Fields (TTFields) and PARP inhibitors, have shown promising results in clinical studies. However, the success of these therapies depends on the development of specific companion diagnostics, which are under development.

The lecture will also cover the importance of individualized treatment, including the use of companion diagnostics, to improve patient outcomes.

This lecture is intended for neuro-oncologists and other professionals involved in the treatment of glioblastoma.