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A framework for standardised tissue sampling and processing during resection of diffuse intracranial glioma: joint recommendations from four RANO groups

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Abstract

Surgical resection represents the standard of care for people with newly diagnosed diffuse gliomas, and the neuropathological and molecular profile of the resected tissue guides clinical management and forms the basis for research. The Response Assessment in Neuro-Oncology (RANO) consortium is an international, multidisciplinary effort that aims to standardise research practice in neuro-oncology. These recommendations represent a multidisciplinary consensus from the four RANO groups: RANO resect, RANO recurrent glioblastoma, RANO radiotherapy, and RANO/PET for a standardised workflow to achieve a representative tumour evaluation in a disease characterised by intratumoural heterogeneity, including recommendations on which tumour regions should be surgically sampled, how to define those regions on the basis of preoperative imaging, and the optimal sample volume. Practical recommendations for tissue sampling are given for people with low-grade and high-grade gliomas, as well as for people with newly diagnosed and recurrent disease. Sampling of liquid biopsies is also addressed. A standardised workflow for subsequent handling of the resected tissue is proposed to avoid information loss due to decreasing tissue quality or insufficient clinical information. The recommendations offer a framework for prospective biobanking studies.