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Beijing Children's Hospital guidelines on the design and conduction of the first standardized database for medulloblastoma

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Abstract

Medulloblastoma (MB) is one of the most common malignant childhood brain tumors (WHO grade IV). Its high degree of malignancy leads to an unsatisfactory prognosis, requiring more precise and personalized treatment in the near future. Multi-omics and artificial intelligence have been playing a significant role in precise medical research, but their implementation needs a large amount of clinical information and biomaterials. For these reasons, it is urgent for current MB researchers to establish a large sample-size database of MB that contains complete clinical data and sufficient biomaterials such as blood, cerebrospinal fluid (CSF), cancer tissue, and urine. Unfortunately, there are few biobanks of pediatric central nervous system (CNS) tumors throughout the world for limited specimens, scarce funds, different standards collecting methods and et cl. Even though, China falls behind western countries in this area. The present research set up a standard workflow to construct the Beijing Children's Hospital Medulloblastoma (BCH-MB) biobank. Clinical data from children with MB and for collecting and storing biomaterials, along with regular follow-up has been collected and recorded in this database. In the future, the BCH-MB biobank could make it possible to validate the promising biomarkers already identified, discover unrevealed MB biomarkers, develop novel therapies, and establish personalized prognostic models for children with MB upon the support of its sufficient data and biomaterials, laying the foundation for individualized therapies of children with MB.

Keywords: Bio-bank; Children; China; Medulloblastoma; Protocol.