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histochemical stains has improved the diagnostic accuracy of TBs. Furthermore, no study has investigated clinical implications of relying solely on TBs for morphological examination of bone marrow. Therefore we aim to evaluate the diagnostic accuracy of TBs and the additional value of BMAs cytomorphology.

Methods: Data were collected from all patients diagnosed at our center over a period of 7 years. Complete bone marrow evaluation (combined bilateral TBs and BMAs) was performed at diagnosis and at predefined time points according to the treatment protocol. Cohen's kappa was used to compare test results. Representativeness was assessed for each TB and BMA and presence or absence of tumor infiltration was reported.

Results: A total of 197 neuroblastoma patients underwent bone marrow evaluation, which yielded 1, 880 biopsies (947 procedures) and 1, 856 aspirates (934 procedures). Bilateral TBs were technically adequate for histological evaluation in 94.9%, bilateral BMAs in 76.8% and complete bone marrow evaluation was achieved in 98.4%. Bone marrow infiltration was reported in 40.1% of all patients. TBs reported infiltration in 35.5% and BMAs in 19.7%. There was an almost perfect agreement when comparing TBs with complete evaluation ($\kappa = 0.901$, $p < 0.001$).

Conclusions: TBs showed higher sensitivity and are more frequently representative than cytomorphology of BMAs. In 4.6% of procedures, the biopsy was negative while the aspirate was positive. In none of these patients the treatment strategy was altered based on positive aspirate only. These findings suggest that bilateral TBs alone may be sufficient to detect bone marrow involvement.

EP444/#1088 | AS05—SIOP Scientific Program/AS05e. Neuroblastoma

Experience With Dinutuximab Beta: Evaluation of Adverse Effects

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Background and Aims: This study aims to evaluate the adverse effects of dinutuximab beta (DB) treatment in patients diagnosed with neuroblastoma.

Methods: Adverse effects occurring during treatment cycles were assessed in patients receiving DB at the Department of Pediatric Oncology, DEU Oncology Institute, between 2020 and 2024. Clinical and laboratory data, along with treatment-related adverse effects, were analyzed in detail. Adverse effects were classified according to the Common Terminology Criteria for Adverse Events (CTCAE) of the National Cancer Institute (NCI).

Results: A total of 519 cycles of dinutuximab beta (DB) administered to 56 patients were analyzed. The male-to-female ratio was 1.1. The median age at diagnosis was 36 months (6–132 months), while the median age at the start of DB treatment was 53 months (12–138 months). Nineteen patients were treated according to the TPOG 2009 protocol, while the remaining 37 patients received treatment under the TPOG 2020 protocol. Patients treated under the 2009 protocol received chemotherapy+DB during the relapse/refractory phase. Of the total 519 DB cycles, 72 cycles were DB alone, while 447 cycles were DB combined with chemotherapy. The most frequently administered chemotherapy regimen alongside DB was irinotecan+temozolomide. Other commonly used chemotherapy regimens included ICE (ifosfamide-carboplatin-etoposide), TVD (topotecan-vincristine-doxorubicin), TVC (topotecan-vincristine-cyclophosphamide), and TOTEM (topotecan-temozolomide). The median number of DB cycles administered in relapse/refractory patients was 10 (2–20 cycles). The most common adverse effects were eosinophilia (45%), fever (44%), gastrointestinal symptoms such as diarrhea and vomiting (39%), elevated liver function tests (37.4%), tachycardia (20%), allergic rash (17, 3%), and capillary leak syndrome (18/519 cycles). Neurotoxicity was observed in 6, 4% of patients, including one case of seizures, one case of transient muscle weakness, and three cases of transient iridoplegia. Fever, neutropenia, thrombocytopenia, anemia, elevated CRP, and hypoalbuminemia were found to be significantly more common in patients receiving DB in combination with chemotherapy compared to those receiving DB alone.

Conclusions: Dinutuximab beta is an effective agent in the treatment of patients with high-risk or relapsed/refractory neuroblastoma. Close monitoring and a multidisciplinary approach have been shown to successfully control treatment-related adverse effects.

EP445/#1534 | AS05—SIOP Scientific Program/AS05e. Neuroblastoma

Integrating Patient-Derived Models and Multi-Omic Profiling: A Precision Medicine Platform for Neuroblastoma Drug Discovery

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Background and Aims: Neuroblastoma (NB) is the most common extracranial malignant solid tumor in children. Heterogeneity of NB leads to diverse response to treatment in different patients, yearning for personalized therapy. This study aims to construct a multi-bio-models and multi-omics-based platform for NB drug screening and target exploration.

Methods: Surgically removed NB tumor and peritumor were collected. NB tissues were dissociated to cell suspension for primary cell culture and organoid formation. Fresh NB tumor tissues were injected subcutaneously to immunodeficient NSG mice. All bio-models were validated using immunofluorescence or immunohistochemistry staining of NB markers. Primary cells or organoids were seeded into 384-well plates for high-throughput drug screen. NB cell lines or PDX were used for drug validation. Fresh NB tissues were subject to next-generation sequencing, including single-cell RNA sequencing (scRNA-seq), whole exosome sequencing (WES) and Bulk RNA sequencing. Bioinformatic analysis were applied for target exploration.

Results: 45 strains of NB primary cells, 70 NB tumor organoids, PDX models of 80 NB samples had been successfully established for this platform. All bio-models were validated by expression of NB markers including PHOX2B, CHGA and SYP. We screened 843 small-molecule drugs in a NB brain metastasis. 22 drugs with IC50 < 500nM were selected as sensitive drugs. Top 400 differently

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