**Patient characteristics of entire cohort总览**

Among 934 patients (65.10% male; 85.97% in Asia) with overall survival, median follow-up was 22 months (range 0–258.4), during which time there were 179 (19.14%) deaths. Median overall survival time was 22 months, and the five-year overall survival probability was 68.2% (95% CI, 63.4% to 72.5%).

The median age at diagnosis was 8 years (range 0.3–54), 75.91% had hydrocephalus before primary tumor resection, and 81.3% had fourth ventricle infiltration. Of the 934 patients, 792 had histological subgrouping available with the following distribution: medulloblastoma with extensive nodularity (MBEN) – 34 (4.29%), large cell/anaplastic (LCA) – 36 (4.55%), desmoplastic/nodular (DN) – 164 (20.71%), and Classic – 558 (70.45%). Additionally, 797 patients had a tumor texture description with the following distribution: soft – 500 (62.74%), soft-hard-mixed – 165 (20.70%), and hard – 132 (16.56%).

Molecular subgroup distribution showed WNT – 133(14.24%), SHH – 253 (27.09%), and non-WNT/non-SHH – 548 (58.67%). Further subclassification of non-WNT/non-SHH showed G3 – 114 (20.80%) and G4 – 387 (70.62%); Subclassification of SHH showed TP53-mutant – 60 (23.72%) and TP53-wildtype – 150 (59.29%). Forty-seven patients with non-WNT/non-SHH and 43 patients with SHH were not further subclassified.

**Association of clinicopathological features and the collective molecular subgroups**

We further examined the association between clinicopathological features and the collective molecular subgroups (WNT, SHH TP53+, SHH TP53-, G3, G4) within this first and expansive medulloblastoma cohort, with a particular emphasis on the Asian demographic. Table 3 shows demographic, clinicopathological, and prognostic features of molecular subgroups and their association. Clinicopathological features were non-randomly distributed in subgroups.

WNT subgroup occurs primarily in children to early adulthood (median age of diagnosis [IQR], 9 [7, 12]) and exhibits a balanced male versus female ratio (male percentage, 43.94%). WNT tumors are mostly of classic histology (91.38%). These observations align with prior findings conducted within EU/USA cohorts 39. The presence of hydrocephalus before surgery in WNT is the lowest (68.18%) among subgroups. The outcomes for patients with WNT are favourable, with 3-year overall survival of 91.7% and 5-year overall survival of 88.3%. Conversely, prior studies documented 5-year overall survival exceeding 90% for WNT-MB in EU/USA cohorts 7,39,40. The relatively diminished survival of WNT MB patients within this cohort (n=132; 93.94% managed in Asia) could potentially arise from instances where certain patients in the Asian subset did not timely undergo adjuvant chemotherapy and radiotherapy subsequent to the primary tumor resection surgery, potentially due to financial constraints or apprehensions regarding associated risks.

SHH represents the most common molecular subgroup in both infants and adults, especially in TP53- subtype. It is more common in males than in females (approximately 2:1). Classic and DN histology occur at similar frequencies, which is consistent with reports derived from EU/USA cohorts 39. Subtype SHH TP53+ accounts for 28.57% of patients with SHH, and large cell/anaplastic (LCA) histology is more prevalent in SHH TP53+ than in SHH TP53- (P = 0.0065). There was significant difference in the three-year overall survival rates between SHH TP53- and SHH TP53+ (P = 0.04).

The male versus female ratio is 2:1 or higher for G3 and G4 medulloblastoma, which is consistent with reports from other EU/USA cohorts 39. G3 accounts for 20.80% of patients with non-WNT/non-SHH, and it had significantly enriched LCA pathology compared with G4 (P = 0.02). G3 is associated with significant inferior prognostic outcomes compared with patients of G4 (1-year OS, 3-year OS, and 5-year OS; P < 0.01; Table 3).

**Comparison between Asian and EU/America MB cohort**

Asian and EU/American cohorts show a significant difference in the distribution of the LCA histological subgroups. EU/America patients are more likely to have this kine while it is rare in Asian group.

Asian patients are more likely to have hydrocephalus before surgery compared to EU/America patients (P < 0.0001).

Both of the two cohorts are rara to have intracranial solid metases with the close probabilty (approximately 20%, P=0.1968).

The two cohorts show a significant difference in whether to take STR tumor resection. The other two ways’ (GTR and NTR) ratio between Asian and EU/America cohorts are both close to 1 : 1.

Asian and EU/America patients are both inclined to take chemotherapy (P = 0.3351). And EU/American patients are followed up longer (with the median 46.3 months) than Asian patients (with the median 19, P < 0.0001).

The survival probabilty from 1 year to 5 year2 of EU/American patients is larger than Asian (P = 0.0002).