Liver metastasis of NSCLC is related to the mutation site of KRAS. There may be a need for more frequent monitoring and follow-up.

Figure 2. The correlation between different molecular status and the incidence and timing of liver metastases in NSCLC.

Background

Different molecular variant types have different propensity to metastasize. For example, bone and pleural metastases are more likely to occur in patients with EGFR mutations [3]. However, there is no clear conclusion on which driver genes or different mutated loci of driver genes are more inclined to develop liver metastasis.

TMB and PD-L1 are indicators for screening a particular population for immunotherapy. High PD-L1 expression in lung cancer liver metastases, adrenal metastases, and lymph node metastases, and low expression in bone and brain metastases [4]. Then whether different PD-L1 and TMB correlate with the risk of occurrence of liver metastases in NSCLC and can be used as a biomarker to predict the occurrence of liver metastases in lung cancer is also not studied by anyone.

Methods

A retrospective study was conducted on 661 patients with Non-small cell lung cancer from January 2019 to November 2021 from 2 centers.

The patients were divided into three groups: lung cancer without liver metastasis, liver-only metastasis of lung cancer, and liver metastases in combination with other metastases.

The correlation between the incidence and timing of liver metastases and clinical characteristics, driver mutations, TMB levels, and PD-L1 expression was assessed.

Results

Table 1. Correlation between clinical factors and liver metastasis of lung cancer.

As the table shows, surgical resection of the primary site at the time of lung cancer diagnosis was an independent protective factor for the occurrence of liver metastases.

Figure 1. The correlation between different molecular status and liver metastasis in NSCLC.

Results 1

(Fig 1) There was a significant difference in TMB levels between patients with EGFR wild type (n=110, p=0.039) and those with mutations (n=110, p=0.014). The difference in TMB levels was statistically significant (p=0.025).

Results 2

(A) For driver genes mutation status, there was no significant difference between the three groups (p=0.150).

(B) Different EGFR mutation sites were not associated with liver metastasis (p=0.716).

(C) Further subgroup analysis showed that KRAS had different mutation sites was statistically significant (p=0.839).

(D) The difference between TMB levels was statistically significant (p=0.025).

(E) Different PD-L1 levels had almost the same tendency to develop liver metastases (p=0.019).

Results 3

(A) Patients without driver gene mutations were more likely to have liver metastasis earlier than those with gene mutations (n=110, p=0.025).

(B) Patients with EGFR wild type had earlier liver metastases than those with the mutant type (n=110, p=0.814).

Conclusions

Liver metastasis of NSCLC is related to the mutation site of KRAS G12C; a higher level of TMB.

Patients without driver gene mutation are more likely to have early liver metastasis.

There may be a need for more frequent monitoring and follow-up, aggressive use of targeted or immunotherapy for patients with these characteristics.

Disclosure

Data from Tangdu Hospital supported this study. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The results of this study have not been published on any public platform.

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