Non-Small-cell lung cancer Diagnosis

Interpretable and easy to obtain MRI features may not be sufficient to predict directly the primary tumour entity of brain metastases (BMs) but seem to have the potential to aid differentiating high- and low-proliferative BMs, such as SCLC and NSCLC [1)]

The epidermal growth factor receptor (EGFR) is a protein that sometimes appears in high amounts on the surface of cancer cells and helps them grow. Some drugs that target EGFR seem to work best against lung cancers with certain changes in the EGFR gene, which are more common in certain groups, such as non-smokers, women, and Asians. But these drugs don't seem to be as helpful in patients whose cancer cells have changes in the KRAS gene. Many doctors now test for changes in genes such as EGFR and KRAS to determine if these newer treatments are likely to be helpful. About 5% of non-Small-cell lung cancers (NSCLCs) have a change in a gene called ALK. This change is most often seen in non-smokers (or light smokers) who have the adenocarcinoma subtype of NSCLC. Doctors may test cancers for changes in the ALK gene to see if drugs that target this change may help them. About 1% to 2% of NSCLCs have a rearrangement in the ROS1 gene, which might make the tumor respond to certain targeted drugs. A similar percentage have a rearrangement in the RET gene. Certain drugs that target cells with RET gene changes might be options for treating these tumors. Some NSCLCs have changes in the BRAF gene.

CYFRA 21-1 has been widely studied as an important biomarker in non-Small-cell lung cancer for both diagnosis and prognosis. Many studies have also assessed the clinical applications of CYFRA 21-1 in head and neck cancer, but the diagnostic and prognostic values of CYFRA 21-1 are not yet fully established.

A pooled analysis aimed to evaluate the diagnostic accuracy and prognostic applications of CYFRA 21-1 in patients with head and neck cancer. A systematic retrieval of literatures was conducted without time or language restrictions by searching PubMed, EMBASE, Web of Science, Cochrane library and China National Knowledge Infrastructure. Twenty studies were eligible for systematic review, of which 14 conformed for diagnostic analysis and 7 for prognostic analysis. The pooled sensitivity and specificity of CYFRA 21-1 analysis were 0.53 (95% CI: 0.39-0.67) and 0.97 (95% CI: 0.93-0.99), respectively. A high level of CYFRA 21-1 was significantly correlated with shorter overall survival (HR 1.33, 95% CI: 1.13-1.56) and disease-free survival (HR 1.48; 95%CI: 1.10-1.97). Current evidence indicates that the level of CYFRA 21-1 in the serum could be used as an indicator for monitoring tumor status and evaluating its curative effects [2)].

1)
Kiyose M, Herrmann E, Roesler J, Zeiner PS, Steinbach JP, Forster MT, Plate KH, Czabanka M, Vogl TJ, Hattingen E, Mittelbronn M, Breuer S, Harter PN, Bernatz S. MR imaging profile and histopathological characteristics of tumour vasculature, cell density and proliferation rate define two distinct growth patterns of human brain metastases from lung cancer. Neuroradiology. 2022 Oct 3. doi: 10.1007/s00234-022-03060-2. Epub ahead of print. PMID: 36184635.

2)
Liu L, Xie W, Xue P, Wei Z, Liang X, Chen N. Diagnostic accuracy and prognostic applications of CYFRA 21-1 in head and neck cancer: A systematic review and meta-analysis. PLoS One. 2019 May 9;14(5):e0216561. doi: 10.1371/journal.pone.0216561. eCollection 2019. PubMed PMID: 31071161.