**Highlights:**

* The incidence of brain metastasis in lung adenocarcinoma patients with EGFR mutations is slightly higher than that in patients with wild-type EGFR, and EGFR-TKIs alone were effective but their therapeutic effect was limited
* IPFS, PFS, and OS in the EGFR-TKI combined with craniocerebral radiotherapy group were not significantly improved as compared to those who were administered TKIs alone prior to PSM.
* We use PSM method to eliminate the impact of potential confounding factors on the results, which compared with EGFR-TKI alone, EGFR-TKIs combined with craniocerebral radiotherapy may improve iPFS, PFS and OS.
* The participation of craniocerebral radiotherapy strategies should be based on a comprehensive evaluation of the patient's lung-molGPA score while making individualized treatment plan.