

INPLASY

Prevalence of Genetic Alterations in Advanced Basal Cell Carcinoma Patients with Resistant to Hedgehog Pathway Inhibitors: A Systematic Review

INPLASY2023120106

doi: 10.37766/inplasy2023.12.0106

Received: 28 December 2023

Published: 28 December 2023

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2023120106

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 December 2023 and was last updated on 28 December 2023.

INTRODUCTION

Review question / Objective Our objective is to investigate the prevalence of genetic alterations in basal cell carcinoma resistant to treatment with Hedgehog pathway inhibitors.

Rationale Basal cell carcinoma, the most common form of skin cancer, is a significant health burden worldwide. Current treatment modalities for BCC involve surgical excision and medical treatments. Our main emphasis on medical treatments is on targeted therapies including Hedgehog pathway such as vismodegib and sonidegib. Nevertheless, these therapies have shown efficacy in locally advanced and metastatic BCC, the resistance is still a significant challenge. Genetic alterations within the Hedgehog pathway, including PTCH1, SMO, GLI, and TP53 genes, are associated with the resistance to these Hedgehog pathway

inhibitors, which need to understanding of the underlying molecular mechanisms. The main objective of this study is to obtain the prevalence of genetic alterations in basal cell carcinoma which is resistant to Hedgehog pathway inhibitors.

Condition being studied Basal cell carcinoma, Hedgehog pathway inhibitors.

METHODS

Search strategy Four databases, PubMed, EMBASE, SCOPUS, and the Cochrane database to find observational studies, using the keyword “basal cell carcinoma”, “vismodegib”, and “sonidegib” from inception to October 2023 will be screened to find the articles conducted in patients with locally advanced or metastatic basal cell carcinoma who were resistant to treatment with

hedgehog pathway inhibitors, vismodegib, or sonidegib.

Participant or population Patients with basal cell carcinoma who resistant to treatment with Hedgehog pathway inhibitors.

Intervention Vismodegib or sonidegib.

Comparator None.

Study designs to be included Prospective, or retrospective cohort studies.

Eligibility criteria The eligibility criteria are as follows; (i) the study in which patients with inoperable, locally advanced, or metastatic basal cell carcinoma was included. (ii) the study in which the genetic alteration from surgical tissues was analyzed. (iii) the study in which patients received the hedgehog pathway inhibitors, including vismodegib or sonidegib. (iv) the prospective, or retrospective cohort study.

Information sources PubMed, EMBASE, SCOPUS, and the Cochrane database.

Main outcome(s) The prevalence of genetic alterations in patients with locally advanced or metastatic basal cell carcinoma which had resistant to treatment with hedgehog pathway inhibitors.

Data management Seven researchers will independently search articles and assess the eligibility of abstracts and full-text studies. Each of the references will be searched to find the included studies to ensure comprehensiveness. Any disagreements will be discussed to a conclusion together with the correspondence.

Quality assessment / Risk of bias analysis Two researchers will independently assess the included studies by the Newcastle-Ottawa Scale (NOS) for cohort studies. Any discrepancies were discussed with each other.

Strategy of data synthesis None.

Subgroup analysis Not performed.

Sensitivity analysis Not performed.

Language restriction English.

Country(ies) involved Thailand.

Other relevant information None.

Keywords Hedgehog pathway inhibitors; vismodegib; sonidegib; resistance; basal cell carcinoma.

Contributions of each author

Author 1 - Suvijak Untaaveesup - designed the study, accumulated and analyzed the data, drafted the manuscript, and arranged the final version.

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