



Objective Response Rate of Capivasertib Across Different Cancer Types: A Systematic Review and Meta-Analysis of Clinical Trials

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ABSTRACT

Introduction: The latest medical advancements in cancer, the world's second-leading cause of death, have improved our understanding of molecular and biological aspects, guiding treatment approaches. In cancer, reactivating mutations, which usually happen in PIK3CA or AKT1, can mess up the PI3K/AKT/mTOR pathway. Capivasertib, a pan-AKT inhibitor, exhibits promising effects across several cancer types by targeting this pathway. This study aimed to evaluate the objective response rate (ORR) of capivasertib across different cancer types, concentrating on clinical trials.

Methods and Materials: The protocol for this study was developed using PRISMA guidelines. A comprehensive search, for published studies up to May 1, 2024, was conducted using the following databases: Web of Science, PubMed, Google Scholar, and Cochrane. Studies were included if they met the criteria as follows: being clinical trials, written in English, reporting on the ORR of capivasertib in various cancer types, providing specific data on the efficacy of capivasertib, such as tumor size reduction or complete or partial response rates, and including adult patients diagnosed with any cancer. The quality of the studies was assessed using the CASP Systematic Review Checklist and the ROBIS, or RoB 2.0, tool. Two researchers independently conducted the search and assessment of studies at all stages.

Results: This systematic review and meta-analysis pooled data from 18 clinical trials (13 randomized and five non-randomized controlled trials) from 2019 to 2023 to evaluate the ORR of capivasertib in patients with breast cancer (47.3%), mutant tumors (31.6%), prostate cancer (15.8%), and lung cancer (5.3%). Among the overall pooled population, median progression-free survival was 3.6 months (95% CI: 3-7.5) with capivasertib monotherapy and 5.6 months (95% CI: 4.6-7.5) with combination therapy of capivasertib. The analysis showed that capivasertib significantly improved the ORR across cancer types, with a pooled ORR of 19% (95% CI = 7.2–36.4%; $p = 0.038$). Notably, the ORR was highest in breast cancers, with a pooled ORR of 36% (95% CI = 20.2%-39.6%; $p = 0.024$).

Conclusion and Discussion: Based on the data, capivasertib may play a potential role in helping patients with breast cancers improve their ORR. More research is needed to be conducted to arrive at more succinct conclusions.

Citation:

Abavisani M, Nilisani V, Khoshrou AR. Impact of Climate Change on Occupational Heat Stress: A Systematic Literature Review. *Iranian biomedical journal* 2024; 28(7): 212.

Keywords: Clinical trial, Neoplasms, Systematic review

