

# INPLASY

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## The combination of proton pump inhibitors and CDK4/6 inhibitors has a detrimental effect on survival in patients with metastatic breast cancer: a systematic review and meta-analyses

Liu, BY<sup>1</sup>; Wang, YW<sup>2</sup>; Peng, Q<sup>3</sup>; Zhang, XT<sup>4</sup>; Qiu, JH<sup>5</sup>; Zhao, S<sup>6</sup>; Zhu, J<sup>7</sup>; Zhang, K<sup>8</sup>; Ma, R<sup>9</sup>; Wang, JL<sup>10</sup>.**ADMINISTRATIVE INFORMATION**

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**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202360060

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 June 2023 and was last updated on 19 June 2023.

**INTRODUCTION**

**Review question / Objective** To determine whether the combined use of proton pump inhibitors in the treatment of metastatic breast cancer patients with CDK4/6 inhibitors will affect the efficacy and lead to poor prognosis.

**Condition being studied** Previous studies have suggested that the combination of proton pump inhibitors (PPIs) may affect the efficacy of cyclin-dependent kinase 4/6 (CDK4/6) inhibitors and lead to a poor prognosis in patients with metastatic breast cancer, but it is still controversial. In this paper, we performed a meta-analysis to further explore the associations.

**METHODS**

**Participant or population** Hormone receptors positive and HER2 negative metastatic breast cancer patients.

**Intervention** Whether proton pump inhibitors were combined or not.

**Comparator** PFS, HR, 95%CI.

**Study designs to be included** Cohort studies.

**Eligibility criteria** Articles conforming to the PICOS principles, and published cohort studies with data available.

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**Information sources** PubMed, Embase, WOS databases.

**Main outcome(s)** Adding a proton-pump inhibitor to a CDK4/6 inhibitor resulted in worse progression-free survival in patients with metastatic breast cancer.

**Quality assessment / Risk of bias analysis** The NOS scoring system was used for quality assessment.

**Strategy of data synthesis** The HR and 95%CI of PFS for the experimental group and the control group were obtained from the original text, respectively, and the Stata software was used to combine the data.

**Subgroup analysis** Subgroup analyses were performed according to the region of enrollment, study period, age of the patients, and the type of medication used to reduce heterogeneity.

**Sensitivity analysis** Sensitivity analyses were performed by sequentially excluding each study.

**Country(ies) involved** China.

**Keywords** CDK4/6 inhibitors; breast cancer; proton pump inhibitors.

**Contributions of each author**

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Author 2 - Yawen Wang.

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