# CHEMOTHERAPY-INDUCED HAND FOOT SYNDROME - COMPARATIVE EFFICACY AND SAFETY OF PHARMACOLOGICAL PROPHYLAXIS: BAYESIAN NETWORK META-ANALYSIS

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## Introduction

Hand-foot syndrome (HFS) is one of the most common toxicities experienced by patients receiving systemic chemotherapy agents such as capecitabine and multi-kinase inhibitors such as sorafenib. Several randomized controlled trials (RCT) have investigated the efficacy and safety of prophylactic agents such as pyridoxine, celecoxib, urea cream, and cystine/theanine in managing HFS. This network meta-analysis evaluated data from high-quality trials to provide strong evidence in forming recommendations to prevent systemic cancer therapy-induced HFS. Our objective is to examine the comparative efficacy and safety of interventions for preventing systemic chemotherapy-induced hand-foot syndrome (HFS) in cancer patients.

## Methods

We searched PubMed, Embase, and clinical trial registries for RCTs of interventions for preventing HFS. Bayesian network meta-analysis (NMA) was performed to estimate the odds ratio (OR) with 95% credible intervals (CrI) from both direct and indirect evidence. The outcome measures were the incidence of HFS (grade ≥1) and moderate to severe HFS (grade ≥2). Adverse drug reactions were discussed descriptively.

**Figure 1) PRISMA flow chart of the search strategy**

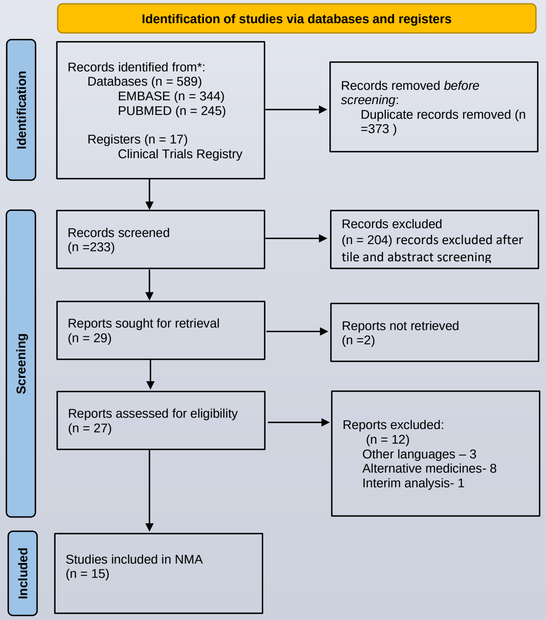



**Figure 2 a) Network graph of the prevention of moderate to severe hand-foot syndrome (HFS, grade ≥ 2),**

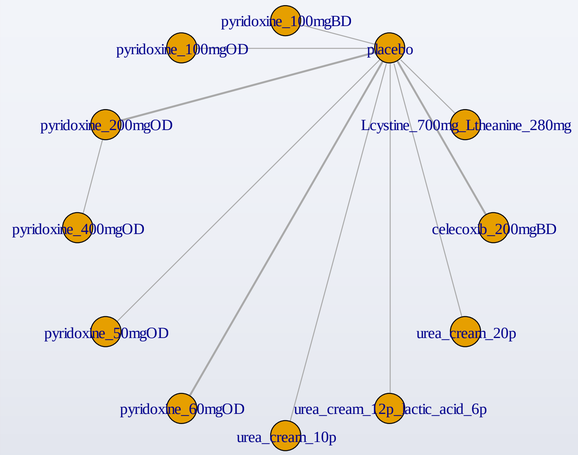



**Figure 2 b) Network graph of the prevention of all grades of HFS (grade ≥ 1).**

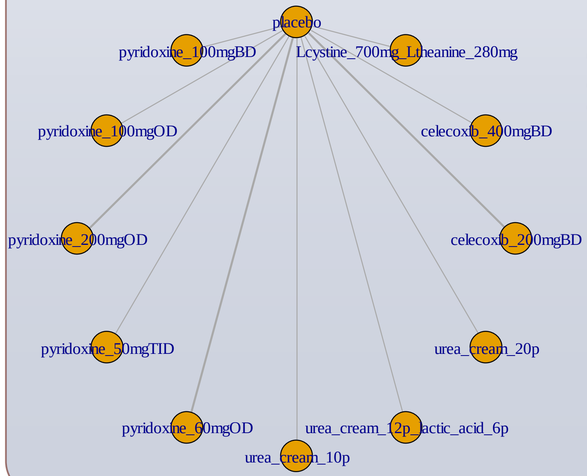



**Figure 3 a) Forest plot showing the odds ratio (95 % CrI) in terms of incidence of moderate to severe grade hand-foot syndrome (HFS, grade ≥ 2**

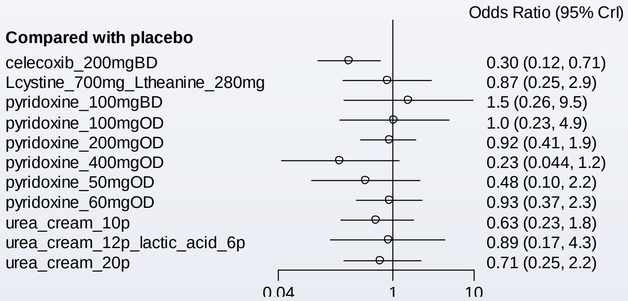
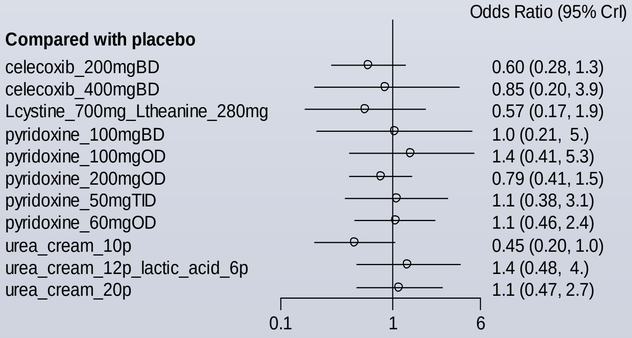
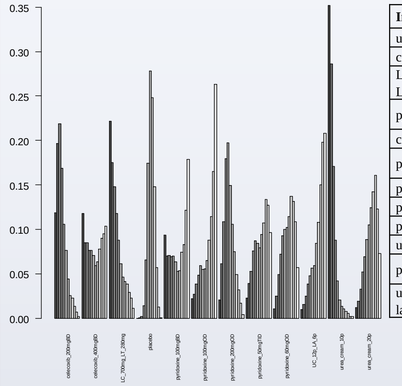



**Figure 3 b) Forest plot showing the odds ratio (95 % CrI) in terms of incidence of all grades of HFS (grade ≥ 1)**




**Rank probabilities of various interventions based on SUCRA score for prevention of all grades of HFS (≥1 grade )**




| Interventions | SUCRA |
|---|---|
| urea_cream_10 % | 0.8649 |
| celecoxib_200mgBD | 0.7366 |
| Lcystine_700mg + Ltheanine_280mg | 0.7211 |
| pyridoxine_200mgOD | 0.6028 |
| celecoxib_400mgBD | 0.5154 |
| pyridoxine_100mgBD | 0.4402 |
| placebo | 0.4153 |
| pyridoxine_60mgOD | 0.4084 |
| pyridoxine_50mgTID | 0.3922 |
| urea_cream_20 % | 0.3466 |
| pyridoxine_100mgOD | 0.2847 |
| urea_cream_12% + lactic_acid_6% | 0.2712 |

## Results

A total of 15 RCTs with 2715 patients with 12 prophylactic strategies were included. The analysis showed that only celecoxib could significantly prevent the incidence of moderate to severe HFS (grade ≥ 2) (OR 0.29, 95% CrI 0.13 to 0.68). But none of the interventions could prevent the incidence of HFS (grade ≥ 1).

## Conclusion

Only celecoxib (200 mg BD) showed significant prevention of moderate to severe HFS incidence. Pyridoxine (400 mg OD) and urea cream (10%) must be further evaluated in larger randomized trials as they have high SUCRA scores.

## References

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