Role of Bismuth Subsalicylate as Adjunctive Treatment in Non-clostridium Difficile Infection, Nosocomial Diarrhea in Department of Internal Medicine, Siriraj Hospital

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Background: Non-Clostridium difficile Infection, Nosocomial diarrhea (non-CDI-ND) is an important problem in hospitalized patients. This condition predisposes patients to increase morbidity, mortality and hospital length of stay and costs. Bismuth subsalicylate, an insoluble salt, has been used for diarrhea owing to its antimicrobial properties, reducing inflammation, and prevention of fluid secretion and absorption. However, lack of evidence of the effectiveness and safety of Bismuth subsalicylate in non-CDI-ND, hence, limits physician prescription.

Objective: The aim of this study was to determine whether bismuth subsalicylate was able to alleviate diarrhea in patients with non-CDI-ND compared to standard care.

Methods: This is a randomized trial in non-CDI-ND patients, from August 2016 to January 2018 in Department of Internal Medicine, Siriraj Hospital. Non-CDI-ND was defined as hospitalized patients who developed liquid stool more than 3 times per day for at least 3 days with negative result of PCR for Clostridium difficile toxins A, B. All recruited participants were randomly to receive ingested bismuth subsalicylate (1048 mg) capsule orally twice daily for 5 days or standard treatment. Baseline characteristics, clinical and laboratory data and stool characteristics were recorded. Descriptive data were analyzed using mean and median, while comparative data were computed by chi-square statistics.

Results: We recruited 22 of patients in standard care group (M=13, mean age=73.91±13.77 years) and 21 patients in Bismuth subsalicylate group (M=6, mean age=71.24±13.71 years). Bismuth subsalicylate when compared to standard care, showed no difference in terms of reduction of stool frequency (mean change=1.66±1.18 times in standard care group vs mean 0.92±1.18 times in Bismuth subsalicylate group, p=0.094), stool volume (mean change=238.29±237.38 ml in standard care group vs mean volume change=92.58±366.45 ml in Bismuth subsalicylate group, p=0.339) and stool consistency (mean change=0.60±1.2 in standard care group vs 0.64±0.89 in Bismuth subsalicylate group, p=0.904). No adverse events were reported in this study.

Conclusion: Our study could not demonstrate beneficial effects of Bismuth subsalicylate in reducing non-clostridium difficile nosocomial diarrhea. All parameter of diarrhea including stool frequency, stool volume and stool consistency are studied. This might reflect the complexity of pathogenesis of non-CDI-ND.

Keywords: Clostridium difficile infection (CDI), Bismuth subsalicylate (BSS)