Sequential use of nitazoxanide (NTZ) as a salvage therapy in patient with recurrent mild to moderate *Clostridium difficile* infection (CDI): a prospective, open-label, randomized clinical trial

P.P. Basu\(^1\), N. J. Shah\(^2\), N. Krishnaswamy\(^2\), R. Korapati\(^2\), S. Tammisetti\(^2\), C. C. Tang\(^2\), \(^1\)Columbia University, New York, \(^2\)North Shore University Hospital at Forest Hills, NY, USA

**Objectives:** Vancomycin and metronidazole are currently used as the recommend therapies for CDI. Treatment failure is due to increasing antimicrobial resistance, insufficient length of therapy and suboptimal drug exposure. Recurrence is estimated up to 20–50% in susceptible populations. We utilize a novel sequential nitazoxanide treatment for 28 days for recurrent CDI.

**Methods:** Thirty (n = 30) patients (age: 57.9 ± 8.1 years; 13 non-hospital and 17 hospital acquired) were treated with oral vancomycin or metronidazole for 14 days and had recurrent CDI within 60 days post treatment. All patients had abdominal pain, fever, diarrhea >3 times/day, leukocytes >12,000, and positive stool toxin assay with Elisa A/B. All were randomized into two groups: Group A (n = 15) patients received nitazoxanide 500mg BID for 14 days, followed by 250mg BID for 7 days, followed by 125mg BID for 7 days; Group B (n = 15) received vancomycin 250mg QID for 14 days, followed by 250mg BID for 7 days, followed by 125mg BID for 7 days. Exclusion criteria: sepsis, toxic megacolon, inflammatory bowel disease, Celiac disease, other colitides, renal sufficiency, probiotic use, immunocompromized state, hemodialysis, or recent chemotherapy.

**Results:** Stool assay PCR for CDI was negative in 10/15 (66.7%) patients after sequential nitazoxanide treatment and in 11/15 (73.3%) patients with sequential vancomycin therapy. There was no significant difference (p = 0.99, Fisher’s exact test) in fecal eradication rate of CDI between the two treatment groups. Side effects with nitazoxanide treatment were minimal including nausea (n = 3), vomiting (n = 1), constipation (n = 4), bloating (n = 2), loss of appetite (n = 5), and yellow skin color (n = 3). This was comparable to vancomycin.

**Conclusion:** This novel sequential therapy with nitazoxanide shows a comparable cure rate to sequential oral vancomycin treatment for recurrent CDI. Nitazoxanide has an advantageous cost benefit over oral vancomycin with minimal side effects. A larger, double-blinded clinical trial is warranted for validation.