



Investigation of Fecal pH in Healthy Volunteers Receiving Oral Omadacycline or Vancomycin

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BACKGROUND

- The human gut microbiome is made up of diverse microorganisms that play an important role in overall host health¹
- Antibiotic exposure has profound disrupting effects on the gut microbiome composition²
- However, the effect of antibiotics on intestinal pH of healthy individuals is unknown

OBJECTIVE

To investigate the fecal pH in healthy volunteers receiving either oral omadacycline or vancomycin

METHODS

Inclusion criteria

- Healthy subjects aged 18 to 45 years with no significant past medical history
- No antibiotic use in the 28 days prior to enrollment

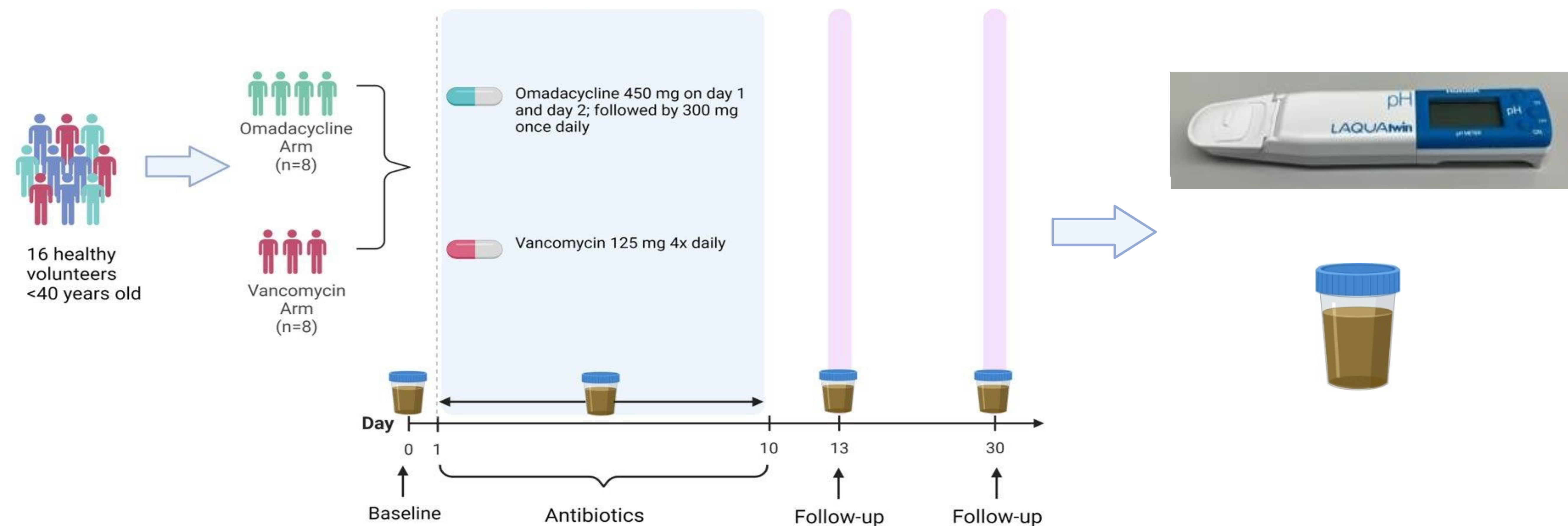
Study design and sample collection

- Subjects were randomized to receive either oral omadacycline (450 mg daily on days 1 and 2 followed by 300 mg daily) or oral vancomycin (125 mg four times daily) for 10 days
- Stool samples were collected at baseline, during antibiotic days (day 1 to 11), and follow-up visits on (day 13 and day 30)

Fecal pH measurement

- Fecal pH was measured using the Compact pH Meter (Horiba Advanced Techno, Japan) and the device was calibrated for each batch of samples
- Approximately 100 mg of solid fecal sample was treated with 50 uL of NaCl for the pH measurement and for the liquid fecal samples, 200 uL was pipetted onto the pH meter
- The daily pH changes were assessed in respect to the baseline and were compared between omadacycline and vancomycin groups

SCHEMATIC DIAGRAM OF STUDY DESIGN



RESULTS

Figure 1. Fecal pH Analysis between Antibiotic Groups

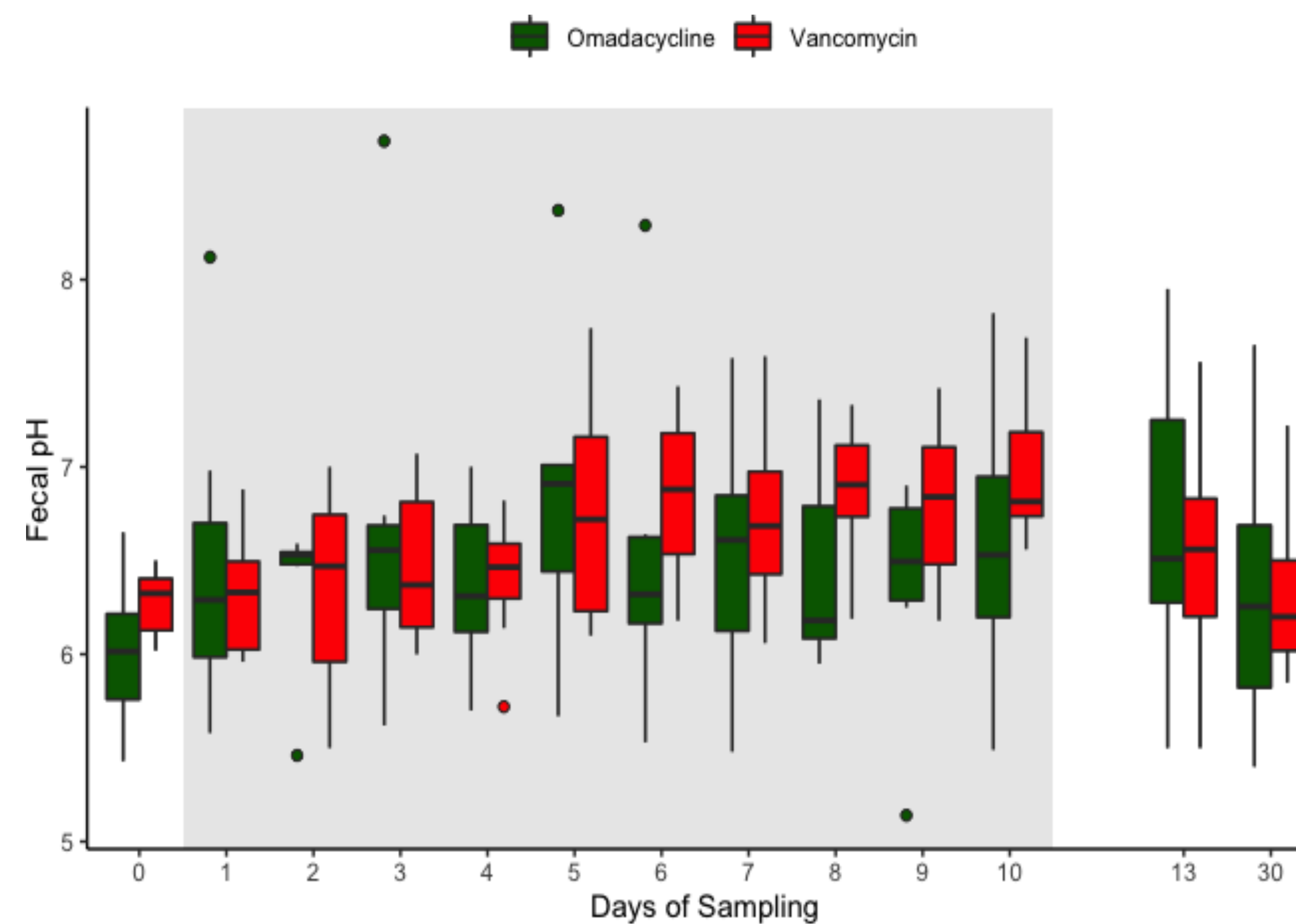


Table 1. Patient Demographic

| Variables | Mean (\pm SD) |
|---------------------------------------|------------------|
| Age (y) | 26 \pm 5 |
| Male, n (%) | 69% |
| Caucasian, n (%) | 31% |
| Body-mass index, (kg/m ²) | 23.6 \pm 3.8 |

CONCLUSION

- The findings of our study suggest that both omadacycline and vancomycin modify the fecal pH of otherwise healthy adults to be more alkaline
- Future studies are needed to better understand the impact of these fecal pH changes on gut-resident microbes and its potential role as a biomarker for gut dysbiosis

REFERENCES

- Ramirez J, et al. Antibiotics as major disruptors of gut microbiota. *Front Cell Infect Microbiol.* 2020;10:572912.
- Osuka et al. Prognostic Impact of fecal pH in critically ill patients. *Critical Care BMC.* 2012;10.1186.