Background. Histo-blood group antigens (HBGAs), whose expression is controlled in part by fucosyltransferase 2 (FUT2) and 3 (FUT3) genes, serve as receptors for norovirus and rotavirus. Individuals without functional FUT2 (nonsecretors) or FUT3 (Levis-negative) genes may have decreased susceptibility to norovirus and rotavirus infections. As the prevalence of secretor and Lewis status can vary by race and ethnicity, we assessed this association in a US Veterans population.

Methods. Stool and saliva specimens were collected from acute gastroenteritis (AGE) cases and age- and time-matched controls through a multisite, active surveillance platform at four Veterans Affairs hospitals (Atlanta, Bronx, Houston, Los Angeles). Stool specimens were tested with the FilmArray Gastrointestinal Panel; norovirus and rotavirus positive specimens were genotyped. Saliva specimens were analyzed for HBGAs expression by ELISA using glycan-specific monoclonal antibodies and lectins. Chi-squared and Fisher’s exact tests were conducted to evaluate associations between secretor status and Lewis status and infection with norovirus or rotavirus.

Results. From November 4, 2015—December 30, 2017, 670 AGE cases and 319 controls provided both stool and saliva specimens. Norovirus (21 GI.4, 13 GI.4 non-sero-4, 7 GI.1, 10 untyped) and rotavirus (13 GI.2P[8], 1 GI2P[4], 1 untyped) positive cases were more likely to be secretor positive (90% and 100%, respectively) compared with controls (76%) (P = 0.03 for both). Infections with GI.4 Sydney norovirus (P < 0.01) and GI2P[8] rotavirus (P = 0.05) were significantly associated with secretor status. This association was not observed with other norovirus or rotavirus genotypes. No associations were found between Lewis status, race, or ethnicity and infection with norovirus or rotavirus.

Conclusion. Norovirus and rotavirus infections among a US Veteran population were associated with secretor status in a genotype-dependent manner, and with GI.4 Sydney norovirus and GI2P[8] rotavirus, the most common strains of these. These associations are consistent with previously reported results, and suggest that the efficacy of interventions, such as vaccines, should include consideration of secretor status and predominantly circulating virus strains.

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656. E. coli Clone Sharing and Persistence Within Households (HHs) in Relation to Fluoroquinolone (FQ) Resistance and ST131 Status

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Background. Extraintestinal E. coli infections, a perennial source of morbidity and mortality, are increasingly difficult to treat due to emerging antibiotic resistance. Within-HH sharing of E. coli strains may contribute to this problem, but is poorly understood. Accordingly, we assessed E. coli strain sharing within the HHs of veterans using E. coli isolate typing by FQ resistance typing.