The median values of QOL and QALYs lost during a symptomatic period of ILI were 0.67 (interquartile range: 0.60–0.79) and 0.0055 (interquartile range: 0.0040–0.0072), respectively.

**Conclusion:** In Japan, most ILI patients visit healthcare facilities in the early phase of symptoms, and most physicians examine them using the RIDT. Most laboratory-diagnosed influenza cases are treated using antivirals. Future work should examine the relation between this early diagnosis and treatment practice, and the duration and severity of ILI symptoms.

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**2642. Development of Human Intestinal Organoids as an Antiviral Evaluation Platform for Enteroviruses**

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**Session:** 272. Studies of Treatment and Prevention of Viral Disease

**Saturday, October 5, 2019: 12:15 PM**

**Background:** Enteroviruses are non-enveloped, single-stranded positive-sense RNA viruses belonging to the family Picornaviridae. Enterovirus A71 (EV-A71) has caused recurrent outbreaks of hand, foot, and mouth disease especially among children in Asia. Some patients develop severe complications, such as meningitis, encephalitis, myocarditis, and pulmonary edema. A major hurdle for the development of antivirals for EV-A71 infection is the lack of robust antiviral platforms that closely mimic the in vivo setting. Organoids are laboratory-adapted miniaturized organs with preserved three-dimensional micro-anatomical architecture. In recent years, organoid cultures have been increasingly used for studying the pathogenesis of and evaluating antiviral treatment options for viral infections. In this study, we developed human intestinal organoids as a robust platform for evaluating antiviral options for EV-A71.

**Methods:** An epidemic strain of EV-A71 isolated from a patient with laboratory-confirmed EV-A71 infection was used. We compared the performance of multiple antiviral evaluation assays (virus yield reduction, plaque reduction, and cell protection assays) between human intestinal organoids and Caco-2 cells, using itraconazole (an antifungal previously shown to exhibit potent anti-enteroviral effects) and DMSO as positive and negative controls, respectively.

**Results:** The antiviral effect of itraconazole was comparable between human intestinal organoids and Caco-2 cells in the virus yield reduction and plaque reduction assays. In the cell protection assay, Caco-2 cells failed to demonstrate significant differences between the itraconazole-treated and DMSO-treated groups. In contrast, cell protection effects were easily observed and quantified in human intestinal organoids. Moreover, the human intestinal organoids allowed the characterization of the different cell types affected in EV-A71 infection with or without itraconazole treatment.

**Conclusion:** Human intestinal organoids support the replication of EV-A71 and provides a robust platform for antiviral evaluation for EV-A71 infection.

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**2643. Oral Nitazoxanide for Viral Gastroenteritis: A Single-Center Experience**

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**Background:** Norovirus and serotypes (40/41) of adenoviruses are the leading cause of viral acute gastroenteritis in adults. The lack of therapeutic options can be devastating especially in the immunocompromised population. Nitazoxanide (NTZ), first designed as an antifolate anti-parasitic agent, is also known to have a broad-spectrum antiviral activity. Efficacy of NTZ in decreasing duration of symptomatic diarrhea in adults was first reported in a placebo controlled trial in 2006. Subsequent reports showed some promise as a possible therapeutic agent for viral gastroenteritis in the immunocompromised hosts.

**Methods:** Utilizing the inpatient pharmacy database we identified patients, who received NTZ for documented viral gastroenteritis, from January 1, 2008 to April 15, 2019. Chart review of cases was done to determine demographics, comorbidities, length of stay (LOS) in hospital, LOS in intensive care unit (ICU), duration of therapy, improvement in symptoms, and mortality.

**Results:** We identified 48 unique adult patients who were administered NTZ in the period under review. Of these 10 were prescribed NTZ specifically for viral gastroenteritis. Of the 48 patients, 26% were female. The median age was 59 years (Interquartile Range [IR]: 47.75–69.25). Median LOS in hospital was 9.5 days (IR: 6.75–41.75). None of the patients required admission to the ICU. 4/10 patients had an active concomitant...
malignancy, of these 3 were receiving ongoing chemotherapy. 9/10 patients were recipients of stem cell (2) or solid-organ transplants (7). 7/10 patients were also on some form of immunosuppressive medications. Most common virus isolated was Norovirus (7/10). All patients received a standard dose of 500 mg twice daily NTZ. The median duration of therapy was 7 days (range: 3–21). 6/10 patients had documented improvement in diarrhea at the end of treatment. 1/10 patients died within 30 days of diagnosis from causes unrelated to diarrhea illness (Table 1).

Conclusion: Our limited data set presents interesting insights into treatment of viral gastroenteritis in immunocompromised hosts, in particular transplant recipients. All of the cases identified were treated in second half of study period after January 1, 2015, signaling an increasing interest in this therapy, especially in cases with prolonged symptoms or viral shedding. Our observations indicate a need for larger studies into this application of NTZ in adult immunocompromised hosts.

Disclosure: All authors: No reported disclosures.

2644. Evaluation of Clinical Course and Health-Related Quality-of-Life Following Treatment with Oseltamivir, Laninamivir, and Baloxavir Marboxil in Adult Patients with Seasonal Influenza: Prospective Observational Study

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Background: Influenza is currently being treated in Japan with 4 types of neuraminidase inhibitors and the cap-dependent endonuclease inhibitor baloxavir marboxil. Among these, baloxavir marboxil is the newest agent and currently available in limited countries, while the clinical efficacy of this drug in the real world remains to be determined.

Methods: Adult patients with seasonal influenza during the 2018–2019 winter season, who received either oseltamivir (75 mg twice daily for 5 days), laninamivir (40 mg once), or baloxavir marboxil (40 or 80 mg once) at their physician’s discretion in one hospital, were enrolled. The course of the symptoms including fever were surveyed by questionnaire. Health-related quality-of-life (HRQOL) was also examined by Short Form-8 before and 7 days after admission. The main study endpoints were mortality, the time to defervescence and the extent of improvement of HRQOL after treatment using Short Form-8 before and 7 days after admission.

Results: Forty-two patients (oseltamivir group; n = 12, laninamivir group; n = 16, baloxavir group; n = 14) could be followed up. There were no significant differences in clinical backgrounds of all groups. Although there were no significant differences between the oseltamivir and each other groups with the time of defervescence, the baloxavir group was more likely to resolve their hypoxia (145 [88%] vs. 84 [79%], P = 0.04) and had a shorter time to resolution of hypoxia (48 hours [22–78] vs. 81 hours [23–135], P = 0.001) compared with oseltamivir.

Conclusion: This study supports the use of baloxavir for the treatment of influenza A in hospitalized patients with possible benefits of reduced length of stay and faster time to resolution of hypoxia compared with oseltamivir.

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2646. Incidence of Myelosuppression Related to Valganciclovir Prophylaxis in Solid-Organ Transplant Recipients at High Risk of CMV Disease

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Background: Valganciclovir (VGCV) prophylaxis in solid-organ transplant patients (SOT) is limited by myelotoxicity. We aimed to analyze the impact of VGCV prophylaxis on myelotoxicity and risk factors for its occurrence.

Methods: Retrospective single-center cohort study of adult CMV-seronegative recipients transplanted between July 2005 and November 2017. CMV D+/R− recipients received 3 to 6 months of VGCV prophylaxis whereas CMV D−/R− received no VGCV. Definitions: leukopenia < 3.5 × 10^9/L, significant neutropenia < 1.0 × 10^9/L, and significant thrombocytopenia < 50 × 10^9/L.

Results: A total of 363 SOT recipients were included, 169 (47%) CMV D+/R− and 194 (53%) CMV D−/R−, with a mean age of 49.5 years and 275 (76%) males; types of organ transplant: 133 (37%) liver, 181 (50%) kidney, 37 (10%) simultaneous kidney-pancreas, and 12 (3%) other. Although there was no difference in the incidence of significant neutropenia or thrombocytopenia per transplant type, leukopenia in the first year was more common in liver transplant patients (P < 0.001). New onset leukopenia post-SOT, significant neutropenia (Figure 1) and significant thrombocytopenia in the first year were more common in patients receiving VGCV. 116 D+/R− (69%) vs. 52 D−/R− (31%), P < 0.001; 86 (91%) vs. 9 (9%), P < 0.001; 8 (80%) vs. 2 (20%),