INTRODUCTION:
- There are many causes of infectious diarrhea in immunocompromised hosts.
- Norovirus, a highly contagious RNA enterovirus, usually causes self-limited diarrhea.
- In the immunocompromised, norovirus can become chronic, lasting months, even years.
- Novel therapies exist aside from supportive care to try to aid in clearance of this chronic infection.

CAUSES OF INFECTIOUS DIARRHEA IN IMMUNOCOMPROMISED HOST

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Mycobacterium</th>
<th>Parasites</th>
<th>Viruses</th>
<th>Fungi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmonella</td>
<td>Mycobacterium Avium Complex</td>
<td>Cryptosporidium belli</td>
<td>Cytomegalovirus</td>
<td>Microsporidium</td>
</tr>
<tr>
<td>Shigella</td>
<td>Mycobacterium Avium Complex</td>
<td>Giardia lamblia</td>
<td>Adenovirus</td>
<td>Histoplasmosis</td>
</tr>
<tr>
<td>Campylobacter</td>
<td>Mycobacterium Avium Complex</td>
<td>Entamoeba histolytica</td>
<td>Rotavirus</td>
<td>Candida</td>
</tr>
<tr>
<td>Clostridium</td>
<td>Mycobacterium Avium Complex</td>
<td>Blastocystis hominis</td>
<td>Norovirus</td>
<td></td>
</tr>
<tr>
<td>difficile</td>
<td>Mycobacterium Avium Complex</td>
<td>Cyclospora Strongyloids</td>
<td>Herpes simplex</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Mycobacterium Avium Complex</td>
<td>stercoralis</td>
<td>HIV</td>
<td></td>
</tr>
<tr>
<td>trachomatis</td>
<td>Mycobacterium Avium Complex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escherichia coli</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION:
- There are many causes of infectious diarrhea in immunocompromised hosts, if they aren’t improving be sure you have thought through the differential and ruled out all causes.
- There are minimal therapeutic strategies for treatment of chronic norovirus:
  - Reduction in immunosuppression¹,²
    - which often does not work in isolation
  - Change from calcineurin inhibitor (tacrolimus) to mTOR inhibitor (everolimus)³
    - Thought to reduce viral replication
  - Nitazoxanide an antimicrobial agent
    - thought to improve viral clearance⁴,⁵,⁶
  - Oral Human Immunoglobulin (OHIG) has been used in several case series⁷,⁸,⁹
- Chronic Norovirus can last for years and greatly affect quality of life thus having an awareness of the tools available can be helpful.

REFERENCES:

CASE PRESENTATION:
- An elderly immunosuppressed woman presents with 3 weeks protracted norovirus gastroenteritis.
- Medical History:
  - Bilateral lung transplantation due to COPD
  - Immunosuppressive therapy
    - Tacrolimus
    - Mycophenolate
    - Prednisone
  - Prior acute rejection, current chronic low grade rejection
    - Solitary Kidney
- Course complicated by:
  - Acute Kidney Injury
  - Supratherapeutic Tacrolimus level
  - Marked non-gap metabolic acidosis requiring bicarbonate drip
- Therapeutic Interventions:
  - Supportive care for symptoms and acidosis
  - Reduction in Immunosuppression → no benefit in symptoms
  - Two rounds of OHIG → improved symptoms, resolution of AKI and metabolic acidosis

TRANSMISSION OF NOROVIRUS