CAR T-cell complications in a single unfortunate case

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The Case

- 23 y/o man with Philadelphia chromosome-like B-cell ALL
- Diagnosis in 2014
- Completed 2 clinical trial regimens before relapsing again 2017
  - MTX and steroids
  - Cyclophosphamide, Cytarabine, Vincristine + IT agent
- Salvage regimen of Cytarabine, Etoposide, and 3x IT agents

The Case

- Admitted Sept 2018 for HyperCVAD (cyclophosphamide, vincristine, Adriamycin, and dexamethasone) as a bridge to CAR T-cell therapy followed by more traditional Flu/Cy lymphodepletion due to BMBx with >85% blasts
- Received Kymriah CAR T-cell infusion on 10/10/18 (CD19-directed CARs with 4-1BB costimulatory domain) in the setting of intermittent tachycardia and ongoing fevers thought due to high number of blasts although he had been on meropenem and televancin for ESBL E coli bacteremia since shortly after admission (cultures cleared) and was found to be adenovirus positive after HyperCVAD

The Case

- Infusion date +5, fevers have become persistent, hypotension not responding to LR infusion, started on low dose norepinephrine. **CRS grade 2**
- Additionally, he was less alert and had word finding difficulty and difficulty naming objects without disorientation, dysmetria, or other neuro defect. **Neurotoxicity grade 2**
- He was given Tocilizumab 800mg x 2 doses and symptoms improved

The Case

- Again developed hypotension and pressor requirement on infusion date + 7 and +8. Received tocilizumab on each of those days as well with resolution.
- Diarrhea – C diff (+) 10/18/18, he had been empirically started on PO vancomycin on 10/16 when loose stools developed
- Remainder of infectious work up negative

Common Chem	Total Protein	Bili, Total	Bili, Direct	ALT/SGPT	AST/SGOT	Alk Phos	Lactate
10/25/2018 2:45 AM	5.3	2.0	0.6	485	142	50	0.5
10/24/2018 4:22 AM							0.5
10/24/2018 4:17 AM	5.2	1.8	0.6	515	192	50	
10/23/2018 4:14 AM	5.1	1.5	0.5	494	226	50	0.8
10/22/2018 6:38 AM							0.4
10/22/2018 5:23 AM	5.1	1.2	0.3	374	226	45	
10/21/2018 4:21 AM	4.3	1.2	0.4	324	190	41	0.8
10/20/2018 4:36 AM	4.2	1.0	0.3	248	152	36	1.3
10/19/2018 4:39 AM	5.1	1.1	0.2	138	89	42	1.1
10/18/2018 6:29 AM	5.0	1.2	0.3	49	14	38	0.7
10/17/2018 11:36 PM							1.6
10/17/2018 4:45 AM							0.6

Common Chem	Ferritin	TG	LDH
10/25/2018 2:45 AM	13661	n 230	415
10/24/2018 4:17 AM	>15000	n 252	539
10/23/2018 4:14 AM	>15000	n 284	664
10/22/2018 5:23 AM	>15000	n 252	846
10/21/2018 4:21 AM	>15000	n 184	878
10/20/2018 4:36 AM	>15000	n 143	803
10/19/2018 5:04 PM	>15000		
10/19/2018 4:39 AM	>15000	n 151	473
10/18/2018 6:29 AM	5949	n 100	149
10/17/2018 4:05 AM	2930	n 97	101
10/16/2018 4:18 AM	2963	n 71	111
10/15/2018 4:31 AM	3644	n 63	97
10/14/2018 4:05 AM	3562	n 64	89
10/13/2018 4:24 AM	3055	n 70	91
10/12/2018 4:08 AM	3706	n 57	83
10/11/2018 4:02 AM	3754	n 49	95
10/10/2018 9:11 AM	2678	n 67	

WBC 0.1 with 100% lymphs throughout this period, pancytopenic and requiring intermittent pRBC and plt transfusion to maintain Hgb>7 and plt>10.

Fibrinogen < 100, intermittently getting cryo and FFP.

The Case

- Infusion day + 18, blood cultures again positive for ESBL E coli and he is started on meropenem/vaborbactam.
- Develops a thigh rash, which is biopsy positive for Fusarium sp. and he is started on amphotericin as well.

- Remains inpatient