

Supplemental Table 1. Initial Individual Symptom Scores

ID	Post COVID day	Total symptom severity (% max)	Touch-evoked allodynia	Spontaneous skin pain	Burning skin pain	Reduced skin sensation	Skin paresthesias	Skin itching	Internal aches or pain	Internal sensation of vibration or fluttering	dizzy or fainting while standing	Rapid heartbeat	Swelling in hands or feet
1	454	58.8	50%	25%	75%	75%	75%	75%	75%	50%	75%	75%	75%
2	90	67.6	100%	100%	75%	25%	100%	100%	100%	100%	75%	50%	50%
3	441	19.1	0%	0%	50%	0%	50%	50%	50%	0%	0%	25%	0%
4	425	25.0	25%	0%	0%	75%	75%	0%	25%	0%	25%	50%	25%
5	119	22.8	0%	0%	0%	75%	75%	25%	0%	0%	50%	50%	75%
6	272	39.7	0%	0%	0%	75%	75%	0%	75%	75%	75%	25%	0%
7	204	61.8	50%	25%	75%	75%	75%	25%	50%	50%	100%	100%	50%
8	4	22.1	0%	0%	50%	50%	75%	0%	0%	25%	25%	25%	0%
9	90	37.5	75%	75%	50%	100%	100%	50%	100%	75%	0%	25%	50%
10	8	80.9	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%
11	295	9.6	0%	0%	0%	75%	25%	0%	0%	0%	0%	50%	0%
12	300	19.1	0%	0%	0%	100%	100%	25%	75%	75%	0%	0%	0%
13	42	61.0	50%	100%	100%	100%	75%	25%	100%	75%	100%	100%	0%
14	90	60.3	50%	50%	25%	50%	50%	75%	75%	100%	100%	100%	50%
15	312	17.6	0%	0%	0%	0%	50%	50%	25%	0%	0%	0%	25%
16	2	30.1	0%	0%	75%	0%	0%	0%	100%	0%	75%	50%	0%
17	21	58.8	50%	50%	25%	50%	50%	50%	75%	50%	100%	50%	25%

ID	Post COVID day	Total symptom severity (% max)	Unusual skin color or color changes	Blisters or sores in mouth	Blisters or sores on feet or hands	Less appetite or weight loss	Stomach bloated after meals	Nausea or vomiting	Belly pain or cramps	Diarrhea	Constipation	Difficulty starting to urinate	Difficulty emptying bladder	Urinating frequently or unintentionally
1	454	58.8	75%	0%	0%	25%	75%	25%	50%	25%	50%	0%	25%	0%
2	90	67.6	50%	25%	75%	100%	100%	100%	50%	75%	25%	100%	0%	100%
3	441	19.1	50%	0%	0%	25%	0%	0%	0%	0%	50%	0%	0%	0%
4	425	25.0	0%	0%	0%	50%	75%	75%	0%	25%	25%	0%	0%	0%
5	119	22.8	0%	0%	0%	0%	0%	0%	0%	25%	25%	0%	0%	0%
6	272	39.7	0%	0%	0%	0%	0%	75%	0%	25%	0%	25%	25%	50%
7	204	61.8	50%	0%	0%	100%	100%	25%	75%	25%	100%	25%	50%	50%
8	4	22.1	0%	0%	0%	50%	25%	0%	0%	0%	25%	0%	0%	0%
9	90	37.5	50%	0%	0%	100%	25%	0%	0%	50%	50%	0%	0%	0%
10	8	80.9	75%	50%	0%	75%	100%	100%	100%	75%	100%	50%	50%	0%
11	295	9.6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	300	19.1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
13	42	61.0	0%	0%	0%	100%	100%	50%	50%	25%	100%	50%	100%	50%
14	90	60.3	25%	0%	0%	75%	75%	75%	50%	50%	25%	0%	50%	75%
15	312	17.6	50%	0%	0%	0%	0%	0%	0%	25%	25%	25%	25%	0%
16	2	30.1	25%	0%	0%	50%	0%	75%	0%	75%	0%	0%	0%	0%
17	21	58.8	50%	25%	0%	50%	75%	75%	75%	75%	50%	75%	75%	75%

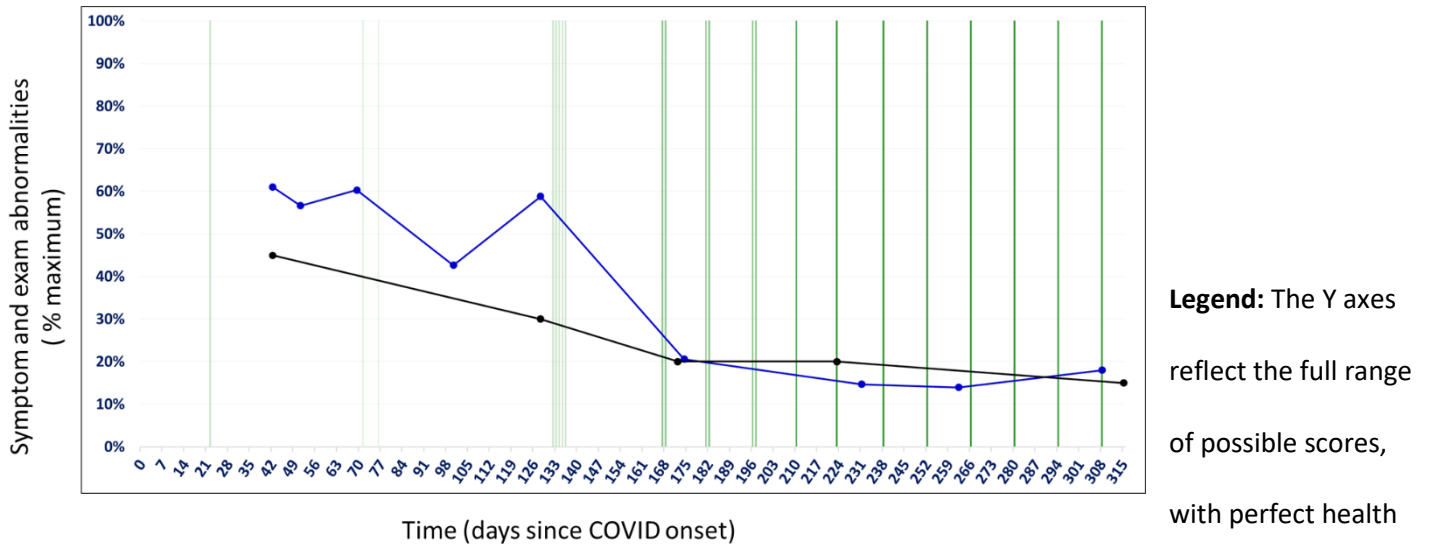
ID	Post COVID day	Total symptom severity (% max)	Difficulty with sexual function	Physical fatigue or less energy	Mental fatigue or brain fog	Sleep difficulties	Headaches	Eye difficulties	Hearing difficulties	Changed sweat patterns	Less hair on legs	Muscle difficulties	Needing to move legs for comfort
1	454	58.8	100.0%	100%	75%	75%	75%	75%	75%	25%	0%	100%	75%
2	90	67.6	0.0%	100%	0%	100%	75%	100%	0%	75%	75%	0%	100%
3	441	19.1	0.0%	25%	25%	50%	25%	75%	0%	0%	0%	50%	50%
4	425	25.0	0.0%	75%	50%	50%	50%	0%	0%	25%	0%	0%	100%
5	119	22.8	0.0%	75%	75%	75%	50%	25%	0%	0%	0%	25%	50%
6	272	39.7	100.0%	100%	100%	25%	75%	50%	50%	75%	0%	100%	75%
7	204	61.8	25.0%	100%	100%	100%	100%	100%	100%	100%	0%	75%	25%
8	4	22.1	0.0%	50%	50%	25%	0%	25%	25%	75%	0%	50%	0%
9	90	37.5	25.0%	75%	25%	25%	0%	75%	0%	0%	0%	0%	75%
10	8	80.9	0.0%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
11	295	9.6	0.0%	0%	25%	0%	0%	0%	100%	0%	0%	0%	50%
12	300	19.1	0.0%	0%	25%	25%	25%	50%	100%	0%	0%	50%	0%
13	42	61.0	50.0%	75%	75%	75%	50%	75%	25%	75%	0%	75%	50%
14	90	60.3	100.0%	100%	100%	75%	50%	50%	100%	75%	0%	100%	75%
15	312	17.6	0.0%	25%	0%	25%	25%	0%	0%	0%	100%	75%	50%
16	2	30.1	0.0%	100%	50%	100%	100%	0%	0%	50%	0%	100%	0%
17	21	58.8	25.0%	100%	100%	75%	75%	50%	75%	75%	0%	75%	75%

Legend: Data represent each participant’s initial responses to the REDCap on-line Small-fiber Symptom Survey, a comprehensive survey of the frequency of symptoms associated with SFN.² Scores are reported as % of full scale (100% maximum) where “never” = 0%, “rarely” = 25%, “sometimes” = 50%, “often” = 75%, and “always” = 100%.

Supplemental Figure 1

Figure 1.

Title: Longitudinal changes in MAGNET exam scores and Small-fiber Symptoms before and after immunotherapy (Case 13)



at bottom, and higher scores reflecting greater illness burden. The black line tracks sequential MAGNET_{v1} exam scores, the blue line SSS scores. Green bars indicated days of IVIg administered with greater color intensity reflecting grams administered that day.

B. Case History: Participant #13, a previously healthy neurologist, practiced full-time and cared for 2 children; the only chronic condition was migraine. SARS-CoV-2 infection initiated respiratory symptoms, profound fatigue, anosmia/ageusia, nausea/diarrhea, unusually severe headache with visual auras, vertiginous oscillopsia, bilateral V3 facial numbness, and proximal limb heaviness/myalgia (Figure 1). Blood tests revealed only slightly elevated alanine aminotransferase (ALT=77). Normal results included antinuclear antibody panel, celiac antibodies, vitamin B12, serum protein electrophoresis, complement 3 and 4, and Borrelia antibodies. On D5 standing tachycardia developed. During week 2 disabling hallucinations of internal vibration attributed to proprioceptive deafferentation appeared. Multisensory hypersensitivity (photophobia/phonophobia) and scalp and back paresthesias were treated with gabapentin then duloxetine; serum ESR and CRP were normal. Albuterol-responsive chest tightness and dyspnea

appeared and persisted for months. Brief propranolol administration for migraine and tachycardia exacerbated weakness. D15 prednisone initiation (40 mg daily) gave improvement for a few days then persisting side effects (anxiety with poor sleep and tremors, cognitive impairment). D16 MRI brain with/without contrast was normal. After SARS-CoV-2 resolution they remained mostly recumbent, unable to work or care for children, with mood difficulties. On D23 the local neuromuscular specialist initiated IVIg at 2g/kg/4 weeks, but rapid infusion triggered typical symptoms and only ~0.4g/kg was administered. Severe neuropathic burning pain developed contemporaneously in the arms, scalp and face, progressing by D41 to the back, thighs, then feet. During a 3-day hospital admission, lumbar puncture yielded normal cell profile, protein, and glucose; 1g intravenous methylprednisolone was administered then prednisone taper. That one day of IVIg improved orthostatic intolerance for one week. Sweating decreased and they spent most time in bed or in the bathtub to cool burning pain. Circa D40, they developed urinary incontinence then near-constant urethral burning pain with nondiagnostic urinalysis. D44 electrodiagnostic and biopsy studies (Table 1) were nondiagnostic, but non-length dependent symptom progression raised concerns for false-negative lower-leg skin biopsy results. On D71-72, the 2nd IVIg infusion was aborted after 0.55g/kg over 2 days after mild reaction. Despite 3 weeks of mild improvement, providers hesitated to resume given infusion reactions. After specialist consultation, on D132-137 the 1st full treatment (2 grams/kg/4weeks) infused slowly without complications. This produced definite improvement waning in 4th week, so dosing was revised to 1g/kg/2weeks, with improvement sustained thereafter. Prednisone discontinuation improved anxiety and sleep. Circa D160 urological symptoms resolved, and the patient resumed childcare. On ~D165 ability to sit for most of the day returned and on ~D185 consistent exercise resumed. Work was resumed on D188, currently at 65% full-time. On D310 exercise tolerance was 45 minutes walking/jogging and they rated themselves as "85-90% back to normal".