

Aging with a Rare Neuroimmune Disorder

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Disclosures

- Consultant: National Multiple Sclerosis Society (NMSS); Novartis; Sanofi-Genzyme; Genentech; Biogen, Abbvie, Bristol Myers Squibb, EMD Serono, Janssen, Horizon
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Normal Aging

...gradual changes in most body
systems

Aging in General

- Progressive decrease in physiological capacity (starting ~age 30)
- Reduced ability to respond to environmental stresses that lead to increased susceptibility and vulnerability to disease
- Mortality due to all causes increases exponentially with aging

Theoretical lifespan

...120 to 150 years

Pyrkov TV, Avchaciov K, Tarkhov AE, Menshikov LI, Gudkov AV, Fedichev PO. Longitudinal analysis of blood markers reveals progressive loss of resilience and predicts human lifespan limit. Nat Commun. 2021 May 25;12(1):2765. doi: 10.1038/s41467-021-23014-1. PMID: 34035236; PMCID: PMC8149842.

Aging of the Immune System

- Decreased ability to fight infections
- Diminished response to vaccination
- Increased incidence of cancer
- Higher prevalence of autoimmunity
- Generalized levels of low-grade inflammation

Aging after CNS Injury includes increased risk of...

- Stroke
- Heart Attack
- Heart Failure (CHF)
- Osteoporosis
- Infections

As compared to the general population

Most common symptoms of aging
after neurological injury include
(after years of relative stability) **slow
symptom progression**

and

Lack of an anatomical correlate

Symptoms

- **Progressive:**
 - Weakness
 - Gait difficulty
 - Spasticity
 - Bladder dysfunction
 - Bowel dysfunction
 - Neuropathic pain

Lack of anatomical correlate

- No new lesions seen on MRI of the brain or spinal cord
- Other conditions are not contributing (ie. Diabetes, peripheral vascular disease, other neurological conditions, etc)

We are referring to this process
as "accelerated aging"

We do not exactly know WHY
"accelerated aging" is occurring

It does not seem to be specific to any
particular type of CNS injury (seen in
TM, MS, SCI, NMOSD etc.)

Treatment for “Accelerated Aging” after CNS Injury

- Unfortunately there are currently **no pharmacological interventions** to offset this process; **only symptomatic management**.
- In our experience, **aggressive physical rehabilitation, exercise in combination with functional electrical stimulation** can help offset this process.

How should patients manage Aging after CNS injuries?

- Exercise regularly (more than people without CNS injuries)
 - Does not have to be complicated (can be as simple as a daily 20 minute walk)
 - Stretch the spastic muscles
 - Keep a healthy weight

Exercise, Exercise, Exercise...

- Exercise can help
 - Reduce fatigue
 - Maintain healthy bowel and bladder function
 - Improve depression
 - Increase endurance
 - Improve joint flexibility
 - Maintain bone health
 - Improve cognition

Non-Traditional Interventions

- Recreational Therapy
 - Utilizes recreation and other activity-based interventions to address the needs of our patients after injury has occurred.
 - Includes Adaptive Sports
- Goal:
 - to achieve psychological and physical health, recovery and well-being.



Thank you

