Recovery after (COVID19) critical illness
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Common problems Post-ICU (2)
• 350g muscle mass loss per ICU-day (malnutrition!)
• ICU-acquired weakness (including the diaphragm!)
• Severe deconditioning
• Joint pain, decreased ROM
• Fatigue
• Post traumatic stress syndrome
• Anxiety, depression
• Cognitive problems (memory, planning, concentration)

Recommendations for interdisciplinary, concurrent PT & dietary intervention

Herridge et al. 2011, Needham et al. 2012, Van der Schaaf et al 2009
Common problems Post-ICU

Long-term physical, mental and cognitive problems
PICS and PIKS-F

Herridge et al. 2011, Needham et al. 2012

COVID-19 specific problems

Poor prognosis (approx. 50% mortality, severe ARDS, cardiac problems, delirium approx. 80%)

After discharge:
- Pulmonary residual problems?
- Multi-morbidity (renal dysfunction, diabetes, cardiorespiratory diseases, obesity)
- PTSD
  - Very, very deconditioned (AT reached with ADL tasks!)
  - ++ ICU-AW
  - Polyneuropathy and -myopathy
  - Decreased aerobic & anaerobic capacity

Spruit et al, 2020 (ERS ad hoc statement)

COVID-19 specific considerations

- During treatment of infectious/contagious patients: wear PPE (gowns, gloves, face masks/protection glasses)
- Do not start group training sessions to prevent possible re-infection
- Home visits (with PPE) in COVID-19 survivors only to ensure safe discharge to home environment
- Do not do lung function testing and max/submax testing within 6-8 weeks after hospital discharge

Thomas et al. 2020, Spruit et al, 2020 (ERS ad hoc statement)
Recommendations for post-ICU rehab

- Transfer from ICU → ward, sometimes link with ICU gets lost
- Patients feel less secure, monitored
- ADL tasks are already very demanding → plan therapy in concurrence with care delivery
- Involve family member with discharge planning
- Discharge planning sometimes abrupt (bed-driven)

- Assess: need for safe discharge, supplemental O2, nutrition, psychological/social support, rehabilitation

Spruit et al. 2020, ERS Ad hoc statement.

Recommendations for post-hospital rehab

COVID-19 patients may remain contagious for weeks after infection and may still have the coronavirus after symptoms disappear. Immunity is still poorly understood.

But: need for support from rehabilitation specialists might be higher than ever.


Phases of recovery & Rx goals

- Phase 1: acute phase (1-4 weeks after discharge)
  Assess patient-specific goals & physical/psychological needs
  Be careful not to overload (physically & mentally)
  Include other disciplines as needed. Frequent, short PT contact moments

- Phase 2: subacute phase (up to 6 months after discharge)
  Increase aerobic capacity, strength, ADL independency
  (Lifestyle) Education, return to work. Increase duration of PT sessions, increase frequency/duration of independent daily activities
  Assess for problems with return to work (OT), psychological needs
Phases of recovery & Rx goals (2)

• Phase 3: late phase (up to 1, 2 years!)
  Adaptation to the new self, return to work
  Learning to deal with decreased overall energy
  Assess the need for support by health coach, psychologist, OT
  Think about peer support initiatives (such as ICU Steps in the UK)

PT tools for screening and assessment

• Respiratory muscle strength: PEmax, Pemax
  → Pulmonary tests only after 6-8 wks post-discharge
• Overall muscle strength: Handgrip or Handheld dynamometry
• Exercise capacity: Two-minute step test, Two-minute walk test, 6MWT, ideally: CPET (timing!)
• Functional: 5 x sit-to-stand, TUG
• Borg RPE 1-10
• Perceived / positive health tool

• Screen for: malnutrition (SNAQ&5+), OT needs, psychological needs

Recommended physical therapy interventions

• Recommendations from the REACH program:
  • Interval training (rest intervals > exercise intervals)
  • Start low intensity, monitor HR
  • Functional training
  • Strengthening exercises (start low intensity → increase reps first, then weight)
  • Don’t forget proprioception
  • Respiratory muscle training (when allowed, exp & insp!)
  • Education on PICS & recovery

In conclusion...

• The coming years rehabilitation after (COVID19) ICU admission will get a lot of attention. PTs are essential in rehabilitation after ICU and often the first contact for the patient, as their first needs are related to physical recovery.
• PTs are rehabilitation professionals, able to assess beyond their own expertise. That gives us a pivotal role in recovery of patients after COVID-19.
• This is new stuff! Share your knowledge and experience with each other (social media, slack channels, LinkedIn, publications)

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