Experience of respiratory rehabilitation in the treatment of Interstitial Lung Disease in post-COVID-19 pneumonia in together with High Intensity and Low- Frequency Pulsed Electromagnetic Fields according to Dr. Felipe Torres protocol (Cell Regeneration Medical Organization – Bogotà (Colombia)

In the period May - June 2020, 10 patients with respiratory failure related to the Covid-19 interstitial pneumonia, were selected and addresses to daily treatments for respiratory rehabilitation according to the Guidelines of the Italian Scientific Society of Rehabilitation, Association of Hospital Pneumologists (AIPO) and Respiratory Insufficiency Rehabilitation Association (ARIR).
The rehabilitation program included: active-assisted exercises and mobilization at bed, analytical and global muscle reinforcement, re-adaptation to the exertion, postural changes, walking and postural balance; respiratory training: ventilation exercises (volume incentive), postural and facilitating treatments in lateral and prone recumbency.
To ameliorate the exertional dyspnoea, typical of post-COVID 19 pneumonia , particularly to improve the respiratory muscles strength and to reduce the development of lung fibrosis, the patients underwent in the course of the above - mentioned rehabilitative program to the treatment with High - Intensity- Low-Frequency Pulsed Electromagnetic Fields, according to Dr. Felipe Torres protocol who had already experienced this technique in another type of interstitial lung disease.

The device CE marked - CTU Mega 20® (Periso SA - Switzerland) - delivers a self- limiting High-Intensity Pulsed Magnetic Field (up 2 Tesla) with 7 Hz of frequency and maximum energy value up to 90 J. The machine offers a variable frequency bandwidth of the induced Electro-Magnetic Field (EMF) to selectively stimulate the proper frequencies of the treated tissues. The high intensity of the MF is offset by the safety range of the magnetic field gradient and it can reach the depth of 7 cm.

The treatment area included the posterior and posterior-lateral thoracic region (intercostal muscles, serratus anterior muscle).
The standardized protocol of treatment was:
6 sessions – 3 times/week for a total of two weeks according to the following scheme.

FIRST WEEK

(reactivation of nerve conduction - metabolic effect on muscle)

PAIN CONTROL	ENDOGENOUS BIOSTIMULATION	LIQUIDS MOVEMENT
6 Hz 30 J 5'	MC 3 PWD 5' FL 3 PWD 5'	60% INTRA/ EXTRA 5'

PC: Pain Control (effect on the neuromuscular junction)
MC: Cell Membrane (activation of ion channels)
FL: Slow fibres (improvement of the nerve transmission)
LIQUIDS MOVEMENT: (ECM drainage, endo-cellular molecular movements)

SECOND WEEK

(cell stimulation- metabolic effect on muscle)

PAIN CONTROL	BIOSTIMULAZIONE ENDOGENA	MOVIMENTO LIQUIDI
6 Hz 50 J 5'	MC 3 PWD 5' MS 3 PWD 5'	60% INTRA/ EXTRA 5'

PC: Pain Control (effect on the neuromuscular junction)
MC: Cell Membrane (activation of ion channels)
FL: Slow fibres (improvement of the nerve transmission)
LIQUIDS MOVEMENT: (ECM drainage, endo-cellular molecular movements)

Before starting the treatment, patients were evaluated with chest CT or thorax X-ray examination. Such assessments were carried out at the end of the treatments.
Functional scales have been applied at the beginning and the end of the treatments
The evaluation scales used were:

- BARTEL
- SPPB (SHORT PHYSICAL PERFORMANCE BATTERY)
- Walking test
- TINETTI
- BORG
- MRC
- SIT TO STAND (only for patients able to do it).

Each patient has shown good compliance with the individual rehabilitative program, completed in respect of the safety measures provided for COVID -19. The addition of the Magnetic Biostimulation has been well-tolerated without adverse events occurring.
- At the end of the hospitalization, all patients improved clinical and functional parameters as per the attached evaluation grid.
- Subjectively, patients have generally reported a speedy and progressive improvement in dyspnea and asthenia with a positive progress of the functional capabilities.
- The radiological parameters don't show significant changes but it is due to the too-small time compared to the usual latency , proper for each type of biophysical stimulation. Then, imaging and clinical controls have been scheduled at three months after the discharge of the patients.
No radiographic worsening of the disease has been recorded.

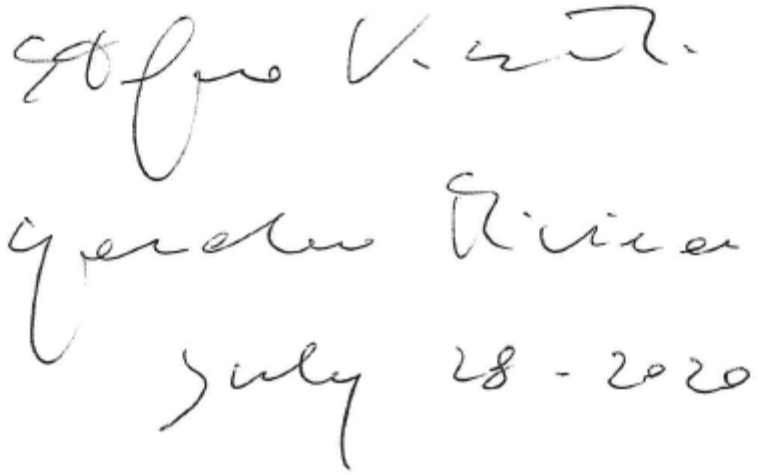
In our opinion, the association of High Intensity and Low - Frequency Magnetic Stimulation provided by the CTU Mega 20 Machine and the standard rehabilitative treatments, allows a more effective taking care of the patients with fibrotic sequelae from pneumonia Covid 19, improving faster and effectively the parameters of respiratory function, muscle efficiency , more tolerance to physical exertion and the reduction of pain.
Surely, it will be interesting the results of the next follow up evaluation, waiting for an improvement also of the pulmonary radiological aspects at three months after the discharge of the patients.

Here, the summary diagram with the scales of assessment administered to the patients at the beginning and at the end of the joint treatments.

PATIENT	BARTEL		SPPB		WT		TINETTI		BORG		TAC/RX	MRC		SATURATION	
	I	D	I	D	I	D	I	D	I	D		I	D	I	D
G.D. cc N°694	68	103	5	12	395	530	8	27		0	X	5	3	97	98
G.Z. cc N°642	105	105	9	12	195	340	26	27	6	3	X	3	3	97-3L	93
M.S. cc N°652	/	/	5	12	285	405	17	24	2	2	X	4	3	96	98
S.R. cc N°733-775	62	85	9	11	305	360	23	28	3	0	X	4	2	95	98
T.R. cc N°654-755	38	65	0	6	/	/	2	17	3	0	X	5	4	95	96
G.C. cc N° 736-774	79	97	6	10	0	300	21	25	0	0	X	3	3	96	95
G.C. cc N°773	43	58	0	0	/	/	8	13	4	2	X	4	4	93	97
G.P. cc N° 662	36	69	0	4	/	/	NE	16	7	4	X	5	4	88-6L	95-1L
E.P. cc N° 829	100	100	8	11	450	570	26	28	0	0	X	3	1	97	98
E.B. cc N° 827	100	100	10	12	360	420	26	28	3	0	X	3	2	98	99

The reports of treated patients are shown below.

Dr. Roberta Scudellari, Ft Federica Bonomi, Ft Monica Benzoni.



CASA DI CURA
Villa Gemma
Viale Zanardelli, 101 – 25083 Gardone Riviera (BS)
Tel. 0365298000 – Fax 0365-290079

REHABILITATION PROTOCOL POST COVID 19

Entry date 24/06/20 Date of discharge 08/07/20

Patient: E.P.

☐ F
X M

Date of birth: 24.04.1948

PATHOLOGICAL ANAMNESIS

Diagnosis Pneumonia Covid19, bronchiectasis
Event index 18/06/20
Comorbidities
ex smoker

DATE OF LAST NEGATIVE BUFFER 16/06/20

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

MV sour

SAT (ing.): 97

TAC-RX data Chest CT scan (18/06/20): slight pulmonary opacity with ground glass in the peripheral mantle territories of both lungs associated with fine interstitial thickening. Bronchiectasis and sub-pleural bullae.

RX dim. (07/07/20): pulmonary opacity at baseline, bilateral fine interstitial basal thickening.

PHYSIOTERAPY TREATMENT

Dysponous and asthenic patient. Begin cautious exercises for muscle reconditioning first from the supine and then from sitting, increasing the workload until you set up an effort reconditioning training with free-load exercise bikes.

Performs 6 CTU sessions (3 times a week) according to the covid 19 protocol (from 24/6 to 06/07).

END OF TREATMENT OBJECTIVE EXAM

MV present, not stasis, not bronchospasm.

SAT (dim.): 98%

ADVERSE EVENT

EVALUATION SCALE:	START	END
°WALKING TEST	450	570
° SPPB	8	11
° TINETTI	26	28
° BARTEL	100	100
° SIT TO STAND	7	12
° BORG	0	0
° MRC	3	1

CONCLUSIONS

Pulmonary ventilation improved, dyspnea decreased, exercise tolerance improved.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 24/06/20 Date of discharge 11/07/20

Patient: E.B.
X F
☐ M

Date of birth: 27.07.1963

PATHOLOGICAL ANAMNESIS

Diagnosis _Pneumonia Covid19, asmathic bronchiectasis
Event index _09/04/20
Comorbidities
previous polytrauma with liver laceration '97

DATE OF LAST NEGATIVE BUFFER _16/06/20

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Widely reduced MV mainly in the expiratory phase

SAT (ing.): 98 in air

TAC-RX data Chest CT scan (18/6/20): Chest CT scan (18/6/20): modest decubitus phenomena of the major slopes to the right RX (9/7/20): no lesions P.P.

PHYSIOTERAPY TREATMENT

Respiratory compromised patient, he starts with respiratory physiotherapy, calisthenics exercises increasing the workload up to the setting of the reconditioning training to the effort with free-load exercise bikes.

Performs 6 CTUs (3 times a week for 2 consecutive weeks) see covid 16 protocol (from 26/6 to 08/07).

END OF TREATMENT OBJECTIVE EXAM

MV present, no added noises.

SAT (dim.): 99% in air.

ADVERSE EVENT

no

EVALUATION SCALE:	START	END
°WALKING TEST	360	420
° SPPB	10	12
° TINETTI	26	28
° BARTEL	100	100
° SIT TO STAND	10	20
° BORG	3 dispnea 3 fatica	0 dispnea 0 fatica
° MRC	3	2

CONCLUSIONS

Improvement of dyspnea and effort tolerance.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 11/05/20 Date of discharge 19/05/20

Patient: G.P.

☐ F

X M

Date of birth: 06.04.1950

PATHOLOGICAL ANAMNESIS

Diagnosis_

Covid pneumonia 19_con insufficiency resp. acute (ARDS under_NIV), pulmonary embolism, PNX and pneumomediastinum.

Event index _18/03/20

Comorbidities

Hypertension

DATE OF LAST NEGATIVE BUFFER _14/05/2020

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Patient not autonomous in the passages and in the ambulation. He has widespread weakness in the 4 limbs, dyspnoea with VAS 7/10, Sat 88% with 6 L of 02. Bibasilary cracks, no edema.

SAT (ing.): 88% with 6 l of O2

TAC-RX data (13/5 Chest CT: ubiquitous bilateral viral pneumonia pattern with right pneumatocele) (15/6 CT scan: pulmonary consolidations slightly reduced. Ground glass pattern persists, right pneumatocele unchanged, formation of a new gas bubble).

PHYSIOTERAPY TREATMENT

In the initial phase bedridden with significant desaturation at the slightest movement even of the upper limbs. Assisted mobilization of the 4 limbs supine with breathing exercises. Re-education of postural passages with exercises aimed at maintaining the sitting position. Verticalization, assisted walking first with forearm, then 2R2P walker and then assisted by an operator.

Performs 6 CTUs (3 times a week for 2 consecutive weeks) see covid 16 protocol (from 26/5 to 5/6).

END OF TREATMENT OBJECTIVE EXAM

Eupnoic at rest, dyspnea persists due to minor efforts. Minimum crackle at the bases.

SAT (dim.): 95% with 1l of O2.

ADVERSE EVENT

Onset of right chest pain and on CT scan right pulmonary gas bubble.

EVALUATION SCALE:	START	END
°WALKING TEST	NE	NE
° SPPB	0	4
° TINETTI	NE	16
° BARTEL	36	69
° SIT TO STAND	NE	NE
° BORG	7 dispnea, 7 fatica	4 dispnea, 2 fatica
° MRC	5	4

CONCLUSIONS

At the end of the rehabilitation treatment, the patient has improved degree of autonomy, walks with minimal assistance without aids for short distances, he needs_O2TLT (2L / Min under stress, 1 l / min at night and at rest). Pulmonary objectivity improved but appearance of new gas bubble to the right. Stress tolerance improved, fatigue reduced.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 29/05/20 Date of discharge 23/06/20

Patient: G.C.
X F
☐ M

Date of birth: 23.05.1939

PATHOLOGICAL ANAMNESIS

Diagnosis_
Recent pulmonary embolism and interstitial pneumonia with negative swabs.
Event index _22/05/20
Comorbidities

Maculopathy, arterial hypertension, mastectomy, COPD, anamnestic TPSV.

DATE OF LAST NEGATIVE BUFFER _22/05/2020

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Vigilant, cooperative, oriented patient. Requires minimal assistance in the steps and on the way. MV reduced diffusely.

SAT (ing.): 96%

TAC-RX data (225/5 with MDC): upper right and middle right lobe ground glass thickening. Chest CT (19/6): ground glass thickening reduced.

PHYSIOTERAPY TREATMENT

Global muscle strengthening is set with particular attention to the lower limbs; much work has been done on the balance and recovery of an autonomous walking with a stick. Respiratory exercises for volume recovery in particular inspiratory with incentivator.
Crank and crank arm.

Performs 6 CTU sessions (3 times a week for 2 weeks) see covid 19 protocol (from 4/6 to 16/6).

END OF TREATMENT OBJECTIVE EXAM

Improvement of balance and exercise tolerance during reduced MV walking, no edema.

SAT (dim.): 95%

ADVERSE EVENT

No

EVALUATION SCALE:	START	END
°WALKING TEST	0	300
° SPPB	6	10
° TINETTI	21	25
° BARTEL	79	97
° SIT TO STAND	8	NE
° BORG	0 dispnea, o fatica	0 dispnea, 0 fatica
° MRC	3	3

CONCLUSIONS

Improved the chest CT picture. Improved effort tolerance.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 11/06/20 Date of discharge 21/07/20

Patient: G.C.
X F
☐ M

Date of birth: 21.10.1945

PATHOLOGICAL ANAMNESIS

Diagnosis_
Covid pneumonia 19_with insuf.resp. treated with VMI e_tracheostomy, bilateral PNX, septic shock.
Event index _06/03/20
Comorbidities

Diabetes mellitus, hypothyroidism.

DATE OF LAST NEGATIVE BUFFER _09/06/2020

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Fine cracks at the bases, not edema.

SAT (ing.): 93% in air

TAC-RX data (225/5 with MDC): Chest CT scan (12/6/20): ground glass area. Basal blistering, right saccal scissuritis Chest x-ray (2/7/20): slow regression of covid pneumonia pattern.

PHYSIOTERAPY TREATMENT

Patient with significant retropulsion, he trains himself to reach the sitting position without support for the trunk and then passes to the standing position with walking with an axillary walker and then with a 2R2P walker. Breathing exercises and mild fkt to the 4 limbs.

Performs 6 CTU sessions (3 times a week) according to the covid 19 protocol (from 16/6 to 27/6).

END OF TREATMENT OBJECTIVE EXAM

MV present, regress crepitations at the lung bases.

SAT (dim.): 97% in air.

ADVERSE EVENT

EVALUATION SCALE:	START	END
°WALKING TEST	NE	NE
° SPPB	0	0
° TINETTI	8	13
° BARTEL	43	58
° SIT TO STAND	/	/
° BORG	4 dispnea 4 fatica	2 dispnea 2 fatica
° MRC	5	4

CONCLUSIONS

Improved pulmonary ventilation, dyspnea and exercise tolerance.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 19/05/20 Date of discharge 12/06/20

Patient: G.D.

☐ F

X M

Date of birth: 04.06.1962

PATHOLOGICAL ANAMNESIS

Diagnosis_

Covid pneumonia with insuff. respiratory and_necessity of_intubation and_cpap, renal insuff.

Event index _18/03/20

Comorbidities

None.

DATE OF LAST NEGATIVE BUFFER _24/04/2020

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Collaborating patient, needs supervision in transfers., Walks with uncertainty and with an enlarged base with the help of a 4-pointed walker. MV present; muscular hypotrophy.

SAT (ing.): 97%

TAC-RX data (225/5 with MDC): Chest CT scan (12/6/20): ground glass area. Basal blistering, right saccal scissuritis Chest x-ray (2/7/20): slow regression of Covid pneumonia pattern.

PHYSIOTERAPY TREATMENT

In the first days of hospitalization he was very compromised, so much so that he could not tolerate the sitting position for more than a few minutes, so he worked with muscle strengthening exercises from the supine and prone, gradually increasing the workload with weights and elastic. Training of walking with assistance and a 4-point walker for short distances was set up. Following the improvement of the clinical and motor conditions, exercises in standing position were inserted for balance with tablets and steps. In parallel with the motor work, respiratory physiotherapy was performed to improve ventilation and lung respiration. In the final phase of hospitalization it is set up an endurance training with treadmill.

Performs 6 CTUs (3 times a week for 2 consecutive weeks) see Covid 19 protocol (from 20/05 to 1/6).

END OF TREATMENT OBJECTIVE EXAM

Significant improvement of individual performance with recovery of the autonomous walk, improvement of effort tolerance and balance.

SAT (dim.): 98%

ADVERSE EVENT

No

EVALUATION SCALE:	START	END
°WALKING TEST	NE	530
° SPPB	5	12
° TINETTI	8	27
° BARTEL	68	103
° SIT TO STAND	/	/
° BORG	3 fatica, 3 dispnea	0 fatica, 1 dispnea
° MRC	5	3

CONCLUSIONS

Improvement of the chest CT picture and of the exercise tolerance.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 06/05/20 Date of discharge 03/06/20

Patient: G.Z.
☐ F
X M

Date of birth: 24.03.1966

PATHOLOGICAL ANAMNESIS

Diagnosis_
respiratory insufficiency in covid pneumonia 19

Event index
Comorbidities
Hypertensive heart disease, twin left DVT, diabetes mellitus, multimetabolic syndrome

DATE OF LAST NEGATIVE BUFFER _11/05/2020

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Collaborating patient, needs supervision in transfers., Walks with uncertainty and with an enlarged base with the help of a 4-pointed walker. MV present; muscular hypotrophy.

CT (18/5): ground glass areas with traction bronchiectasis

SAT O2 entry: 97% with 3 l of O2

PHYSIOTERAPY TREATMENT

In the initial phase, the patient is compromised from the respiratory point of view with desaturation under stress, so much emphasis was placed on breathing exercises from the supine, lateral decubitus and sitting. Once the saturation has been stabilized during walking in O2 therapy, the motor exercises in the 4 limbs are intensified by also inserting the reconditioning to the effort first with horizontal exercise bikes without resistance and then with a treadmill.

Carries out 6 CTU sessions (3 times a week for 2 weeks) from 18/05 to 29/5 (see covid 19 protocol).

END OF TREATMENT OBJECTIVE EXAM

The patient achieved an improvement in gait and exercise tolerance; dyspnoea decreased and during hospitalization there was a reduction until the suspension of oxygen therapy.
SAT (dim.): 93% without O2

ADVERSE EVENT

No

EVALUATION SCALE:	START	END
°WALKING TEST	195	340
° SPPB	9	12
° TINETTI	26	27
° BARTEL	105	105
° SIT TO STAND	11	ne
° BORG	6 dispnea, 2 fatica	3 dispnea, 0 fatica
° MRC	3	3

CONCLUSIONS

Patient clinically and in good cardio-respiratory compensation.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 07/05/20 Date of discharge 01/06/20

Patient: M.S.

☐ F

X M

Date of birth: 18.05.1955

PATHOLOGICAL ANAMNESIS

Diagnosis _Pneumonia Covid19, with respiratory failure and subjected to invasive ventilation and tracheostomy

Event index _09/04/20

Comorbidities

arterial hypertension, obesity

DATE OF LAST NEGATIVE BUFFER _11/05/20

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Autonomous patient in walking with 2R2P walker, after about 50 m desaturates at 90. Presence of widespread weakness and fatigue.

SAT (ing.): 96

TAC-RX data Chest CT scan (09/04/20): bilateral frosted glass areas. interstitial pneumonia. Chest CT scan (29/5): reduced ground glass areas, scarring of upper lobes.

PHYSIOTERAPY TREATMENT

Given the fatigue, treatment based on active mobilization exercises for the 4 limbs begins while sitting and then standing. Performed exercises to improve static and dynamic balance. Crank for upper limbs and horizontal exercise bikes.

Performs 6 CTU sessions (3 times a week) according to the covid 19 protocol (from 20/5 to 01/07)

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END OF TREATMENT OBJECTIVE EXAM

Improvement of effort tolerance and autonomy in the present MV path, not edema.

SAT (dim.): 98

ADVERSE EVENT

no

EVALUATION SCALE:	START	END
°WALKING TEST	NE	405
° SPPB	5	12
° TINETTI	17	24
° BARTEL	/	/
° SIT TO STAND	/	/
° BORG	2 Dyspnea, 5 fatigue	2 Dyspnea, 0 fatigue
° MRC	4	3

CONCLUSIONS
Improved chest CT picture. Dyspnea and exercise tolerance improved.

FOLLOW UP AFTER 3 MONTHS

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REHABILITATION PROTOCOL POST COVID 19

Entry date 28/05/20 Date of discharge 22/06/20

Patient: S.R.

☐ F
X M

Date of birth: 24.06.1938

PATHOLOGICAL ANAMNESIS

Diagnosis _Pneumonia Covid19, respiratory failure complicated by NSTEMI
Event index _26/05/20
Comorbidities

CIC, FAP, CRI, arterial hypertension

DATE OF LAST NEGATIVE BUFFER _28/05/20

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

alert, harsh MV with widespread rales

SAT (ing.29/05): 95

TAC-RX data
diffuse areas of parenchymal consolidation with ground glass CT chest (19/6) reduced areas of consolidation and ground glass

PHYSIOTERAPY TREATMENT

Autonomous patient, but with uncertain walking in the initial phase of hospitalization and widespread weakness. Exercises are set muscle reconditioning especially of the lower limbs and balance exercises in standing position on an unstable surface. Crank and crank arm

Performs 6 CTU sessions (3 times a week) according to the covid 19 protocol (from 05/6 to 17/06)

END OF TREATMENT OBJECTIVE EXAM

Pulmonary crepitations reduced (minimal at the bases)
SAT (dim.): 98

ADVERSE EVENT

no

EVALUATION SCALE:	START	END
°WALKING TEST	305	360
° SPPB	9	11
° TINETTI	23	28
° BARTEL	62	85
° SIT TO STAND	/	14
° BORG	3 dyspnea, 5 fatigue	0 dyspnea, 0 fatigue
° MRC	4	2

CONCLUSIONS

Improvement of the picture of interstitial pneumonia on chest CT

FOLLOW UP AFTER 3 MONTHS

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Tel. 0365298000 – Fax 0365-290079

REHABILITATION PROTOCOL POST COVID 19

Entry date 7/05/20 Date of discharge 23/06/20

Patient: T.R.

☐ F
X M

Date of birth: 02.01.1938

PATHOLOGICAL ANAMNESIS

Diagnosis Pneumonia Covid19, respiratory failure (subject to NIV until 10/04 with CPAP), TEP
Event index 25/03/2020
Comorbidities: vascular encephalopathy (TIA) and DX Hemicolectomy for CA colon, arterial hypertension, BPH

DATE OF LAST NEGATIVE BUFFER 29/04/2020

OBJECTIVE EXAMINATION AT THE BEGINNING OF THE TREATMENT

Alert, bedridden, bilateral mean basal crepitations,muscular hypotrophy, pathological thinness, dyspnoicus.

TAC-RX data Chest CT scan (29/04/20): multiple bilateral interstitium-alveolar infiltrants. Extended DX thickening. Bubble and TEP SX
Chest CT (4/6): improved the picture of interstitial pneumonia, not TEP.
SATURATION entrance (95%)

PHYSIOTERAPY TREATMENT

In the initial phase, muscle strengthening was performed in the bed especially for lower limbs and exercises aimed at recovering postural passages and
for sitting trunk control. On reaching the upright station, we worked with weight-bearing and balance exercises, then setting the gait first with an anti-brachial walker and then with a four-wheeled walker for longer and longer stretches

6 CTU sessions (3 times a week) according to the covid 19 protocol (from 20/5 to 8/6)

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END OF TREATMENT OBJECTIVE EXAM

The crevitations that remain minimal at the right base are reduced, the hemodynamic compensation is good.

SAT (dim.): 96

ADVERSE EVENT

Orthostatic hypotension
Accidental fall with head trauma and modest subdural hematoma

EVALUATION SCALE:	START	END
°WALKING TEST	/	/
° SPPB	0	6
° TINETTI	2	17
° BARTEL	38	65
° SIT TO STAND	/	/
° BORG	3	0
° MRC	5	4

CONCLUSIONS
Improvement of the pulmonary interstitial picture up to weaning of O2 therapy. Limited walking due to orthostatic hypotension.

FOLLOW UP AFTER 3 MONTHS
