RADIOLOGICAL RESOLUTION IN A SEVERE COVID PATIENT: A FOLLOW-UP STUDY

General Medicine

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ABSTRACT

Pulmonary Fibrosis Is A Frequent Complication In Patients With Viral Pneumonia-induced Acute Respiratory Distress Syndrome. However, Ct Scans Have Shown That The Signs Of Pulmonary Fibrosis After Viral Pneumonia Can Partially Regress Over Time. So Now A Days, As A Part Of Covid Treatment, For Preventing Fibrosis, We Are Giving Anti Fibrotics And Steroids. But We Don't Know The Actual Sequal Of Lesions In Lung Due To Covid. Here We Would Like To Discuss About Our Case Of Severe Covid-19 Infection Who Was Managed With Anti-fibrotics, Niv, Anti-virals, Steroids And Prone Ventilation. This Particular Patient Had Ct Severity Score Of 21/25 With B/I Ggos, Fibrotic Bands And Consolidatory Changes. A 1 Month Follow-up Ct Scan Showed A Reduction In Ct Severity Score (15/25) And Gross Resolution In Consolidatory Changes And Ggos. The Clinical Condition Showed A Significant Improvement.

KEYWORDS

CASE REPORT:

A 52 Years Old Known Hypertensive And Diabetic Patient On Regular Medication Presented With Chief Complaints Of Fever Since 4 Days

Cough With Mucoid Expectoration Since 4 Days
Srb Grade-ii Mmrc

No H/o Chestpain, Hemoptysis, Loss Of Consciousness.

On Evaluation- Patient Is Conscious, Coherent And Well Oriented.
Bp-130/80mmhg, Heart Rate-72/min, Respiratory Rate-26/min, Spo2%- 90% At Room Air Temperature-102°F, Auscultation – Bilateral Diffuse Fine Inspiratory Crepts Present.

Patient Was Diagnosed To Be Covid-19 Positive By Rat On Day-2 Of Hospital Stay.

- Patient Was Provided Initially With A High Flow Oxygen Through Venturi Mask
- He Was Treated With I.v Broad Spectrum Antibiotics (carbapenems, Macrolides),

- Antiviral Drugs (remdesivir Standard Dose 200mg I.v Od Day-1 Followed By 100mg I.v Od Day 2-5),
- High Dose Iv Steroids (methylprednisolone 125mg Bid) After Inflammatory Markers Report.
- Anticoagulation (low Molecular Weight Heparin 60mg, S/c ,bid).
- Antifibrotic (pirfenidone 801mg Tds)
- Supportive Medication In The Form Of Zinc, Vitamin-c, B-complex Etc.
- Even After The Treatment, Patient Had Severe Hypoxemia And Had To Be Put On Niv Support
- Later Was Found To Be Tolerating Niv Well And Then Was Provided Non-rebreathable Mask Support
- Patient Had A Relatively Long Hospital Stay (during The Course Of Which He Developed Secondary Infections, That Were Adequately Managed), With Niv And Nrm Support
- Later The Patient Was Put On Prone Ventilation- 4-5 Cycles/day With Each Cycle Lasting For 2-3 Hours
- Finally He Was Discharged With Spo2 Of 92% With Domiciliary O2 Support On Demand.

His Routine Blood Investigations Revealed

Investigation	05/09/20	15/09/20	16/9/20	23/09/20	1/10/20	11/10/20	21/10/20
WBC (cumm)	11,6000	13,400	15,900	14,600	17,100	11,800	12,000
Hb (gm/dl)	14.1gm/dl	13.8	13.5	12.9	13.2	13.4	13.6
Platelet count (cumm)	1,35,000	1,28,000	1,22,000	1,20,000	1,00,000	1,14,000	1,25,000
Sr.CREATINE (mg/dl)	0.7	0.8	0.9	1.0	1.3	0.8	0.9
Bilirubin (mg/dL)	1.5 (D-1.2 & I-0.3)	1.9 (D-1.1, I-.8)	1.4 (D-0.7 & I0.7)	1.3 (D- 0.8 & I- 0.5)	1.2 (D- 0.6) & I- 0.6)	1.2 (D-0.7, I-0.5)	1.1 (D- 0.6 & I- 0.5)
LDH (U/L)	890	1020		1532	1328	765	565
Na+(mmol/l)	127			132		134	
K+(mmol/l)	3.4			3.5		3.9	
Albumin (g/dL)	3.2	3.1				4	
CRP (mg/Dl)	1.2			2.4		1.2	0.6
SGOT (U/L)	25	86		98		87	68
SGPT (U/L)	62	201		220		190	160
CA+2			8.1			6	
D-DIMER (mcg/ml) FEU		2		1.6		1.4	0.6
Sr.Ferritin (ng/ml)		1500		1650		1543	700
IL-6 (pg/ml)		10		45	70	36	12

HRCT CHEST:

1) CT DURING HOSPITAL STAY (26/09/2020)
S/O BILATERAL DIFFUSE GGO, SUB PLEURAL FIBROTIC BANDS WITH THICKENED INTER LOBULAR SEPTA.
CORADS - 6 (CONFIRMED CASE OF COVID -19)

CT SEVERITY INDEX - 21/25

PATIENTS RADIOLOGICAL POFILE:
CHEST X-RAY: B/L FLUFFY HOMOGENOUS SHADOWS ALL OVER THE LUNG FIELDS

**2) FOLLOW UP AFTER DISCHARGE (12/11/2020)
CT SEVERITY SCORE (15/25)
SIGNIFICANT RADIOLOGICAL IMPROVEMENT
COMPARED TO PREVIOUS CT**

patient was initially managed by hospital covid protocol. he was responding well to treatment initially. he was found to be desaturating from day 6 of his hospital stay and was shifted to icu for critical care support. stayed in icu for a period of 10 days with niv support with escalated antibiotics and other supportive measures.

shifted to ward and put on oral anticoagulants, started antifibrotics (pirfenidone 801mg tds) and put on non-rebreathable mask. he was maintaining saturation with nrm, so he was started on intermittent prone ventilation consisting of 4-5 cycles/day with each cycle lasting upto 2-3 hours. he was also advised to do incentive spirometer.

patient improved symptomatically and maintaining saturation and was hence discharged with domiciliary o2 support on demand. a 1 month follow-up ct scan showed a reduction in ct severity score (15/25) and gross resolution in consolidatory changes and gggs. the clinical condition showed a significant improvement.

DISCUSSION:

by considering all recent data about post covid radiological sequele, it has been found that there are 3 major ways of sequele.

- 1) complete resolution (most common)
- 2) persisting radiological lesion
- 3) post covid fibrosis

till now we don't know the percentage of patients who may go for fibrosis lung or complete resolution. actual mechanism of resolution of lesions and fibrosis is still not completely understood. according to various studies, the fibrotic bands which are seen in covid patients is due to edematous underlying area of hyperperfusion, this may improve gradually over a period of time. the same was observed in our patient.

CONCLUSION:

- there should be proper periodical clinical and radiological follow up in each and every covid patient with significant radiological findings in ct
- patients can be followed up with hrct thorax at monthly intervals to evaluate the clinical and radiological improvement
- further studies are required regarding post covid fibrosis and also regarding the role of anti-fibrotics and steroids in preventing fibrosis

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