ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 06 | June - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

TO STUDY PREVELENCE OF FIRST TIME OBSERVED THYROID DYSFUNCTION IN COVID 19 PNEUMONITIS

Internal Medicine

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ABSTRACT

Aims and objective :

1. To study the prevalence of thyroid dysfunction in covid 19 positive patients.
2. To analyse the effect of treatment in prognosis and outcome of covid 19.
3. To correlate thyroid dysfunction with severity of disease

New coronavirus pneumonia (COVID-19) is a health emergency due to its high infectiousness and high case fatality in critically ill patients. COVID-19 may also influence the function of thyroid.

KEYWORDS

COVID 19 CASES, THYROID DYSFUNCTION, TFT, MORTALITY

Physiological concentrations of L-thyroxine (T4) and 3,3' ,5-triiodo-L-thyronine (T3) stimulate the production and release of cytokines, which are also components of "cytokine storm" potentially characterizing systemic viral infections.

On the other hand, respiratory infections could potentially precipitate a thyroid storm in patients with decompensated hyperthyroidism, which in turn may favour the infection-related mortality risk due to cardiovascular morbidity Clinical monitoring and appropriate treatment strategies are essential to improve case fatality.

TFT(S.TSH/FT3/FT4) can be used in the early diagnosis of thyroid dysfunction in covid 19. Patients presenting with severe pneumonia had thyroid dysfunction. We assessed the correlation between TFT, disease severity and mortality in comorbid and non comorbid patient to provide reference for clinical treatment.

From June 2020 to June 2021 a 50 case of laboratory confirmed COVID 19 cases admitted to civil hospital , Rajkot.

INCLUSION CRITERIA:

All case of laboratory confirmed case of age more than 12 year, with or without any comorbidities

EXCLUSION CRITERIA:

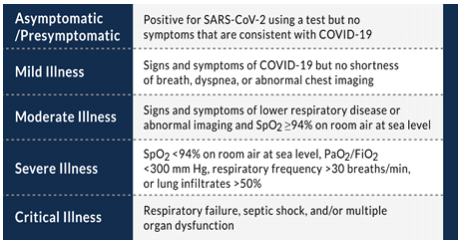
(1) Any patient with pre-existing thyroid dysfunction
(2) patient tested negative for covid

Method

- We performed a retrospective/analytical study to determine correlation between TFT and mortality in COVID 19 patient in comorbid and non comorbid patient. On admission TFT was done and were divided in the following groups of patients: hypothyroid and hyperthyroid. We analysed a correlation between TFT and disease severity and mortality. We also analyse outcome in comorbid and non comorbid patient with same severity group of patient.
- We analysed 50 positive cases of COVID 19 at civil hospital Rajkot, divide them according to severity of illness using ACEP grading of covid 19. We observed a direct correlation between TFT and severity/mortality in COVID positive patient. More in study we found that outcome was worse in comorbid patient than In non comorbid patient with same severity group.

STANDARD REFERENCE RANGE FOR THYROID TESTS (AS PER LABORATORY OPTIMAL REFERENCE RANGE)

1. SERUM TSH- 0.3 TO 4.2MIU/L
2. FREE T3- 2.04 TO 4.4 pg/mL
3. FREE T4- 0.93 TO 1.71ng/dL



RESULTS

Our main observations of this study were-

1) CORRELATION WITH SERUM TSH LEVELS

S. TSH LEVELS(miu/l)	NO. OF CASES(N)	PERCENTAGE(%)
<0.3	13	26
>4	36	72
0.3-4	01	02

S. TSH levels more than 4Miu/l is more commonly observed thyroid dysfunction in covid 19 pneumonitis than S. TSH level less than 0.4Miu/l

2) CORRELATION WITH COVID-19 SEVERITY(as per acep grading)

SEVERITY OF ILLNESS	NO. OF PATIENTS	PERCENTAGE
MILD	00	00
MODERATE (LRTI/abnormal imaging but spo2 more than 94)	10	20
SEVERE (spo2 less than 94/ RR more than 30/lung infiltrates more than 50%)	40	80

In majority of cases in case of first time observed thyroid dysfunction in case of covid 19 pneumonitis, covid illness was severe in nature.

CONCLUSION

1.The present clinical study was conducted in 50 patients with covid 19 pneumonitis

2.Data regarding history, symptoms, signs, investigations ,treatment, complications and outcome were recorded.

3.Thyroid dysfunction is one of the complication of covid 19 pneumonitis.

4. Commonest age group for first time observed thyroid dysfunction in covid -19 pneumonitis is 40-50yrs.

5. Females are more commonly affected with first time observed thyroid dysfunction in covid 19 pneumonitis than males

6.In our study, prevalence of hypothyroidism is greater than hyperthyroidism

7.It can be result of subacute thyroiditis secondary to viral etiology so follow-up TFT advised.

8. In majority of cases in case of first time observed thyroid dysfunction in case of covid 19 pneumonitis, covid illness was severe in nature

9. In case of first time observed thyroid dysfunction in covid 19 pneumonitis, majority had symptoms of thyroid dysfunction like neck pain

10. Majority of the patients with first time observed thyroid dysfunction in case of covid 19 pneumonitis, have BMI between 25-29.9.

11. There were no underweight or obese patients in our study. But the prevalence of thyroid dysfunction was more in overweight individuals than that of normal weight. Also, incidence of hypothyroidism was more in overweight individuals and incidence of hyperthyroidism was more in normal weight individuals.

12. Out of 50 patients diagnosed with first time diagnosed thyroid dysfunction, 80% of them were successfully discharged while 20% of the patients expired

13. In our study of 50 patients, prevalence of hypothyroidism was more than that of hyperthyroidism in both discharged and expired patients. Thus, we can conclude that no specific type of thyroid dysfunction is associated with better outcome or poor prognosis.

Also, there is one case report of thyroiditis in H1N1 by Salim Alawi Baharoon of a thyroid storm in one H1N1 patient in 2010 with thyrotoxicosis(signs and symptoms like heat intolerance, tachycardia and thyroid function results were available in 24 h and were as follows Thyroid stimulating hormone TSH < 0.01 mIU/L (0.3–3.0 nmolIU/L), T3 50 nmol/L (1.1–3 nmol/L) T4 200 nmol/L (60–145 nmol/L).

- In our limited study of 50 patients, we can conclude that thyroid dysfunction is common in severe covid 19 pneumonitis which can be due to multiple mechanisms as discussed., with prevalence of hypothyroidism being more common than hyperthyroidism.

- Diagnosis of thyroid dysfunction during covid illness Is vital in the course of disease as timely treatment can result in favourable outcome and prevention of thyroid related complications.

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