



PROGNOSIS OF COVID-19 ASSOCIATED OLFACTORY DYSFUNCTION - A SINGLE CENTRE PROSPECTIVE STUDY

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ABSTRACT

BACKGROUND: The general and common symptoms of covid 19 disease are fever, dyspnoea, cough, cold, headache, sorethroat, dysphagia, loss of smell and taste, Gastrointestinal manifestations. The symptoms may be exhibited alone or in combination. The prime objective of the study is to know the recovery rate of anosmia in COVID patients.

METHOD: Single center ,prospective study covered 120 anosmic patients for a period of 2 months duration ie; from August and September 2020 in tertiary health care centre. They were followed up for 14 months at 2 monthly intervals. Olfactory self assessment was done at their home and history was taken telephonically.

RESULT: Near complete olfactory recovery was seen by the end of the study.

KEYWORDS : Anosmia, COVID-19, olfactory epithelium.

1)INTRODUCTION :-

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Even in mild disease people often reported being unable to smell and subsequently experience a loss of taste. While not a life-threatening side effect, it's certainly one that can deeply impact the quality of life. The purpose of our study is to subjectively assess smell impairment in COVID-19 patients and to correlate olfactory recovery. After the intranasal inoculation of several viruses, previous animal studies have shown central olfactory damage and damage to deeper areas of CNS (1). Seldom, this dysfunction may persist, suggesting a sensorineural central damage(2). The primary outcome of the current study, time of recovery from anosmia was analysed.

2)MATERIALS AND METHODS:-

A single center, prospective study conducted on 1070 patients who were Polymerase chain reaction (PCR)-confirmed mild to moderate COVID-19 patients, recruited from August 1, 2020 to September 31, 2020 at Tertiary health care centre which is recognised to provide COVID services. Over the course of 14 months ,at 2nd monthly intervals , patients were asked telephonically to self assess olfaction at home (using coffee, camphor,garlic) and were asked to self-report the time of recovery from anosmia.

2.1) Inclusion Criteria:-

All COVID-19 positive patients admitted irrespective of severity, with no previous history of smell dysfunction and who are willing to participate in study are included.

2.2)exclusion Criteria:-

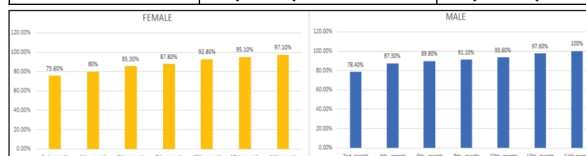
Patients less than 19yrs , who had previous history of smell dysfunction.
Individuals who haven't agreed for study have been excluded.
Patients already on nasal steroids.
Patients who didn't follow up.

3)RESULTS :-

Out of 1070 patients,901 (84%)were symptomatic and 169(16%) were asymptomatic. Among the symptomatic patients 138(15.3%) had anosmia , out of which 18 were excluded from the study.120 patients with gender ratio of M:F =1.9:1, were analysed in our study. To clarify the clinical course and prognosis, we followed patients with COVID-19 related anosmia for 14 months.

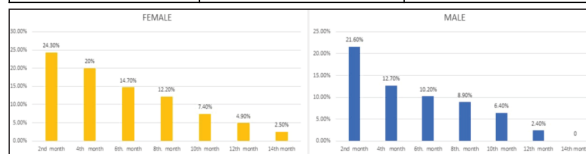
(Tab1)Overall Recovery rate:-

FOLLOW UP	MALE	FEMALE
2 nd month	62 (78.4%)	35 (75.6%)
4 th month	69 (87.3%)	33 (80%)
6 th month	71 (89.8%)	35 (85.3%)
8 th month	72 (91.1%)	36 (87.8%)
10 th month	74 (93.6%)	38 (92.8%)
12 th month	77 (97.6%)	39 (95.1%)
14 th month	79 (100%)	40 (97.1%)



(Tab2)Rate of Anosmia during the follow up period:-

FOLLOW UP	MALE	FEMALE
2 nd month	17 (21.6 %)	10 (24.3 %)
4 th month	10 (12.7 %)	8 (20 %)
6 th month	8 (10.2 %)	6 (14.7 %)
8 th month	7 (8.9 %)	5 (12.2 %)
10 th month	5 (6.4 %)	3 (7.4 %)
12 th month	2 (2.4 %)	2 (4.9 %)
14 th month	—	1 (2.5 %)



Most patients with COVID-19-induced anosmia can fully or partially recover their olfactory function for varying durations. In general, most patients with COVID-19-associated olfactory dysfunction recovered within 2 months. By the end of 1yr all the male patients were normosmic. 1 female patient didn't recover within the follow-up period.

4) DISCUSSION :-

Before COVID-19 era, the prevalence of olfactory dysfunctions, anosmia and hyposmia (decrease in the sense of smell), was around 3 to 20% of the population (3). Since the earliest days of COVID-19 era, many otolaryngologists described an extremely high number of sudden anosmia with or without other symptoms. In fact, anosmia has caught the attention of otolaryngologists all over the world with a growing body of research on this abnormality. However, the exact mechanism of smell abnormalities is yet to be determined.

Previous studies suggested that SARS-CoV-2 might impair olfactory function through targeting of olfactory epithelium (OE)-supporting cells (such as sustentacular or microvillar cells). These cells express both the angiotensin-converting enzyme 2 and the transmembrane protease, serine 2, which are both believed to be crucial for SARS-CoV-2 cell entry. Therefore, the observed chemosensory dysfunction might be related primarily to the local peripheral inflammation(4).The short recovery time in the majority of COVID-19 related anosmia suggests that the primary mechanism of olfactory disorder could be temporary disturbance of olfactory epithelial cells, whereas neuronal damage in some cases could cause long-lasting anosmia(5).Olfactory dysfunction is more prevalent in younger participants and females as previously reported by other investigators (6). Other study reported, higher presentation of anosmia in females which could be attributed to the fact that women are more sensitive to changes in the sense of smell than men(7).

5)CONCLUSION :-

Persistent COVID-19 related anosmia has an excellent prognosis with nearly complete recovery at 1 year. Study also found that younger patients appeared to be more likely to regain olfaction early. Most patients with COVID-19-induced anosmia can regain their sense of smell The limitations of the current study is subjective assessment of smell.

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