

Epidemiological, Clinical and Serological Characteristics of COVID-19 in Symptomatic Patients in Fkih Ben Salah Province (Morocco)

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At the time of writing this article, data on the clinical and epidemiological characteristics of COVID-19 contaminated Moroccan patients remains largely unavailable. Herein, we profiled retrospectively the epidemiological characteristics (clinical, serological) of 108 COVID-19 suspected cases in Fkih Ben Salah Province of Morocco.

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. Its manifestations can be viewed as a combination of the two processes, namely viral pneumonia and acute respiratory distress syndrome (ARDS) [2]. COVID-19 is a novel disease reported initially in Wuhan, Hubei Province, China, in December 2019 before it has become a global pandemic.

The Clinical signs of Covid-19 infection overlap with other viral infections, which has complicated the clinical diagnosis. Serological tests are considered powerful complements to the nucleic acid tests, especially for COVID-19 patients with undetectable viral RNA [3]. A clear advantage of serological tests over RT-PCR is the identification of individuals previously infected by SARS-CoV-2, even if they never underwent testing while acutely ill. As such, serological tests could be deployed as a surveillance tool to better understand the epidemiology of SARS-CoV-2 and potentially inform individual risk of future disease [4].

This study aims to analyze the epidemiological, clinical and serological characteristics of patients with COVID-19 after

diagnosis through detection of IgM and IgG antibodies against SARS-CoV-2 by fluorescence immunoassay. To address our objective, a survey was carried out on a total of 108 symptomatic patients who benefited from serological tests of covid-19 (November 1st to December 31st, 2020) by a fluorescence immunoassay using the FRENDS System for the qualitative detection of anti-coronavirus IgG and IgM in human serum and plasma (Li-heparinized, EDTA, or citrate). Out of the total patients suspected with COVID-19 in the Province of Fkih Ben Salah, 103 patients were COVID-19 Positive.

Data in Table 1 shows patients age ranged from 18 to 90 years (mean age of 51.79 years) with 49 women and 59 men with a sex ratio of 1.2. Among the patients, almost none had severe SARS-CoV-2 infections, except for two patients (1.9% of patients with COVID-19) who were admitted to the hospital for severe acute respiratory syndrome. There was no difference in the proportion of men and women, which was inconsistent with the results of a study that was conducted by Guan et al. [5] that men were more likely to be infected than women. Similar result has been demonstrated by a Danish research team [6].

Underlying comorbidities were present in 11% (n=12). Diabetes (5.5%) and high blood pressure (0.9%) were the most common comorbidities noted (Table 1). This value remains low as compared to the meta-analysis findings in China; where hypertension, cardiovascular disease, and diabetes (16.4%, 12.1%, and 9.8%, respectively) [7] were the most common comorbidities noted.

Table 1: Epidemic context and symptoms of the patients suspected with COVID-19 in the Province of Fkih Ben Salah.

	COVID-19 IgM+, IgG+ or both + (n=103)	Non COVID-19 IgM- and IgG - (n=05)	All patients (n=108)
Demographic:			
Age	55.5 (18-90)	51 (46-58)	51.8 (18-90)
Male	55 (53%)	4 (80%)	59 (55%)
Female	48 (47%)	1 (20%)	49 (45%)
Co-morbidities and risk factors:			
Age > 70 years	5 (4.6%)	0	5 (4.6%)
Diabetes	6 (5.5%)	0	6 (5.5%)
Hight blood pressure	1 (0.9%)	0	1 (0.9%)
Heart disease	0	0	0
Tuberculosis	0	0	0
Symptoms:			
Fever \geq 38°C	22 (20.3%)	2 (1.8%)	24 (22.1%)
Cough	10 (9.2%)	1 (0.9%)	11 (10.1%)
Asthenia	5 (4.6%)	0	5 (4.6%)
Dyspnea	0	0	0
Myalgia	7 (6.4%)	0	7 (6.4%)
Diarrhea	0	0	0
Abdominal pain	0	0	0
Anosmia	5 (4.6%)	0	5 (4.6%)
Dysgeusia	5 (4.6%)	0	5 (4.6%)

The most common symptoms reported by both groups included fever (22.1%) and cough (10.1%), followed by myalgia (6.4%), asthenia, anosmia and dysgeusia (4.6%) (Table 1). Patients may initially present diarrhea and nausea a few days prior to fever, suggesting that fever is dominant but not the initial symptom of infection. A small proportion of patients can have a headache or hemoptysis [6] or even be relatively asymptomatic [8, 9]. Our results showed a similar prevalence and the most common symptoms reported by both groups included fever (22.1%) and cough (10.1%), followed by myalgia (6.4%).

Out of 108 patients suspected with COVID-19, 103 patients (95.3%) generated SARS-CoV-2 specific antibody responses. The most common profile is IgM negative/IgG positive (48.5%), followed by IgM positive/IgG positive (43.6%) and IgM positive/IgG negative (7.9%). A proportion of 92.2% (95/103) of these patients were positive for IgG and 51.4% of them (53/103) were positive for IgM. It is worth noting the reported low of isolated IgM antibody positivity in most of the studies. We can speculate that this could be a false negative due to low antibody concentrations or their short duration.

The study by Li et al. [10] on large samples collected from 397 RT-PCR confirmed COVID-19 patients and 128 negative patients from eight different clinical centers using a rapid lateral flow immunoassay searching IgM and IgG antibodies. The IgM-IgG combined assay showed better sensitivity compared to the single IgM or IgG test. In fact, among the COVID-19 patients it was found that 64.48% (256/397) had both IgM and IgG positive test results, while 18.13% (72/397) and 6.04% (24 of 397) had only IgM, and only IgG positive results, respectively [10].

Conclusion

This study is the first of its kind to be conducted among symptomatic patients with suspected SARS-CoV-2 infection in the Province of Fkih Ben Salah. It provides important information on the demographic, anthropometric, clinical and serological characteristics of these patients. Most cases present the common coronavirus symptoms (fever and cough) with IgG antibodies to SARS-CoV-2.

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