

**Sex-based Variations in Clinical
Manifestations, Co-morbidities, and
Outcome of COVID-19 Patients in
Baghdad, Iraq, 2020**

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Background

- As the COVID-19 pandemic continues, differences between male and female mortality and infectivity remain an area of active investigation.
- Different clinical studies have given conflicting reports on the male or female predominance of COVID-19 infections.

Background

- The sex difference in the response to the COVID- 19 pandemic raises some questions about the differences in:
 - ✓ Vulnerability
 - ✓ Susceptibility
 - ✓ Proportion of hospitalization
 - ✓ Similarity in symptoms
 - ✓ Response to treatment

Background

- In Iraq, it was reported that a higher percentage of the confirmed COVID-19 cases were males.
- Other sex-based variations between males and females associated with COVID-19 patients in Iraq were not adequately explored.

Objective

- Determine and compare the variations between male and female COVID-19 patients in Baghdad, Iraq in 2020 concerning the following:
 - ✓ Clinical manifestations
 - ✓ Co-morbid illnesses
 - ✓ Severity
 - ✓ Outcome

Methods

- **Study Design**

Records-based, cross-sectional study.

- **Settings**

AlKarkh and AlFurat are two General Hospitals that were selected for the management of COVID-19 patients in the western part of Baghdad (AlKarkh).

- Both hospitals have a total of 325 beds, including nearly 15 RCU beds.

Methods

- **Study Population and Sampling**

- This included all the records of the admitted patients to the assigned two hospitals who tested positive for SARS-CoV-2 using the RT-PCR test from June 1st, 2020 till August 31st, 2020

Methods

Data Collection Tool

- **First section:** Demographics and baseline characteristics.
- **Second section:** Signs and symptoms, comorbid illnesses, and degree of severity.
- **Third section:** Outcome, total number of days from diagnosis till outcome, and total number of days of hospital stay.

Results

Distribution of the study group by basic demographics

		Male (1175)		Female (936)		Total (2111)		P-value
		No	%	No	%	No	%	
Age (years)	Mean \pm SD (Range)	49.7 \pm 15.7 (3-93)		49.5 \pm 17.2 (1-93)		49.6 \pm 16.4 (1-93)		0.240
Health care worker	Health care worker	65	5.6	29	3.2	94	4.5	0.008*
	Not	1094	94.4	883	96.8	1977	95.5	
Smoking history	Current smoker	208	28.9	48	7.9	256	19.3	0.001*
	Non- smoker	511	71.1	562	92.1	1073	80.7	

Distribution of the study groups by gender and the presenting symptoms

Presenting Signs and Symptoms;	Male (1175)		Female (936)		Total (2111)		P-value
	No	%	No	%	No	%	
Fever	858	73.0	693	74.0	1551	73.5	0.599
Sore throat	126	10.7	131	14.0	257	12.2	0.022*
Nasal congestion	17	1.4	14	1.5	31	1.5	0.926
Conjunctival congestion	8	0.7	6	0.6	14	0.7	0.911
Headache	91	7.7	74	7.9	165	7.8	0.891
Muscular symptoms	256	21.8	193	20.6	449	21.3	0.515
GIT symptoms	90	7.7	108	11.5	198	9.4	0.002*
Respiratory symptoms	1029	87.6	847	90.5	1876	88.9	0.034*

Distribution of the study group by gender and the Co-morbid illnesses

	Male (1175)		Female (936)		Total (2111)		P-value
	No	%	No	%	No	%	
Co-morbid Illnesses	423	36.0	400	42.7	823	39.0	0.002*
Hypertension	255	21.7	273	29.2	528	25.0	0.0001*
Diabetes mellitus	271	23.1	256	27.4	527	25.0	0.024*
Heart diseases	45	3.8	47	5.0	92	4.4	0.183
Chronic Respiratory Diseases (COPD, TB, Other resp)	9	0.8	7	0.7	16	0.8	0.962
Asthma	8	0.7	14	1.5	22	1.0	0.067
Other illnesses (Renal, liver, CVA, immune-comp, malignancies, others)	41	3.5	31	3.3	72	3.4	0.823

Distribution of the study group by gender and the Severity Classifications

Severity classification	Male (1175)		Female (936)		Total (2111)		P- value
	No	%	No	%	No	%	
Mild (upper respiratory disease)	63	5.4	53	5.7	116	5.5	0.764
Moderate (pneumonia but no need for oxygen)	513	43.7	427	45.6	940	44.5	0.383
Severe (pneumonia and need oxygen)	337	28.7	260	27.8	597	28.3	0.648
Critical (needs RCU)	262	22.3	196	20.9	458	21.7	0.438

Distribution of the study group by gender and the outcome

		Male (1175)		Female (936)		Total (2111)		P-value
		No	%	No	%	No	%	
Outcome†	Recovered/Improved	919	78.2	708	75.6	1627	77.1	0.202
	Death	189	16.1	124	13.2	313	14.8	

†Missing data

Distribution of the study group by gender and the Days from diagnosis to outcome and days of hospital stay.

		Male (1175)		Female (936)		Total (2111)		P-value
		No	%	No	%	No	%	
Number of days from diagnosis to outcome	1---7	384	32.7	271	29.0	655	31.0	0.070
	8---14	522	44.4	409	43.7	931	44.1	
	15---21	188	16.0	186	19.9	374	17.7	
	>21 days	81	6.9	70	7.5	151	7.2	
	Mean ± SD (Range)	11.1 ± 7.0 (1-60)		11.8 ± 6.8 (1-47)		11.4 ± 6.9 (1-60)		
Number of days of hospital stay	1---3	306	26.0	246	26.3	552	26.1	0.478
	4---6	370	31.5	271	29.0	641	30.4	
	7---9	230	19.6	205	21.9	435	20.6	
	>9 days	269	22.9	214	22.9	483	22.9	
	Mean ± SD (Range)	6.9 ± 5.1 (0-43)		7.1 ± 5.2 (0-47)		7.0 ± 5.1 (0-47)		

Conclusions

- There were some variations between the two sexes in certain clinical manifestations and comorbidities
- The severity of the disease and the case fatality rate were almost similar among the two sexes.

Recommendations

- Further studies tackling a wider geographical area in the country is recommended.
- Further research is warranted to investigate hormonal, inflammatory, immunologic, and phenotypical differences among COVID-19 cases.

Thank You