The Besrour Centre for Global Family Medicine

Dr. Patrick Chege Memorial Research Award Poster Presentation

How well does SARI Score Predict COVID-19 Positivity? A Retrospective Analysis at a Tertiary Hospital

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CONTEXT: During the peak of the COVID-19 pandemic wave in The Kingdom of Saudi Arabia, much research was directed towards rapid point-of-care diagnostics to quickly identify and isolate COVID-19 suspected cases. The emergency department at our tertiary hospital utilized a slightly modified version of a SARI (Severe Acute Respiratory Infections) screening tool for triaging patients presenting to the ED with respiratory illness, formerly used extensively during the previous MERS epidemic. Currently, there are no studies on SARI as a screening tool for suspected COVID-19 patients.

OBJECTIVE: To assess the utility of our modified SARI screening tool in predicting COVID-19 positive cases in an ED setting.

DESIGN: A retrospective chart review carried out between March 13, 2020, and November 30, 2020. All incoming patients were screened with two tools, the SARI (Severe Acute Respiratory Illness) screening tool, and the CTAS-based triage tool.

PARTICIPANTS: This study includes 961 patients who were screened using the SARI screening tool and underwent a combined nasopharyngeal and oropharyngeal RT-PCR swab for SARS-CoV-2.

MEASURES: SARI scores were classified into categories – Low (1 - 4 points), Medium (5 - 11 points), and High (12 and above points).

RESULTS: The median SARI score was found to be 40% higher in COVID-19 positive patients as compared to COVID-19 negative patients (p = 0.002) (Table 1). However, the multivariate logistic regression analysis showed that the SARI model may only explain 3% of the variability in COVID-19 positivity (R-square = 0.03). The multivariate analysis of the SARI model variables resulted also in a weak prediction ability, where only 24% of the COVID-19 positivity could be explained through model predictors (R-square = 0.242) (Table 2).

CONCLUSIONS: The SARI screening tool has a role in predicting COVID-19 positivity and requires additional studies on a larger and more representative population to further assess the accuracy and utility of the tool.

Table 1 Relationship of SARI score with COVID-19 positivity

		COVID positivity			Mann-Whitney U	P-value
		Positive	Negative	Total		
SARI Score	Median	7	5	7	23,838	**.002****
	Mean Rank	486.88	345.55			

Table 2 Logistic regression

Nagelkerke R Square = 0.031

		B	S.E.	Wald	df	p-value	OR
Step 1[a]	SARI Score	.137	.049	7.843	1	.005**	1.147
	Constant	2.303	.306	56.526	1	<0.001**	10.005

Nagelkerke R Square = 0.242

	B	S.E.	Wald	df	p-value	OR
Hospital Employee	0.487	0.374	1.690	1	0.194	1.627
Fever	1.045	0.401	6.782	1	**0.009****	**2.844**
Shortness of breath	-0.906	0.383	5.590	1	**0.018***	**.404**
Sore throat	-0.548	0.408	1.800	1	0.180	.578
Cough	0.430	0.382	1.267	1	0.260	1.538
Headache	1.152	0.465	6.132	1	**0.013***	**3.164**
Loss of Smell/Taste	17.768	6188.971	.000	1	0.998	52086155.121
Gastro Symptoms	0.577	0.628	.844	1	0.358	1.781

COVID EXP	1.137	0.359	10.026	1	**0.002****	**3.116**
Comorbidities	2.147	0.468	21.071	1	**<0.001****	**8.562**
Constant	0.878	0.381	5.321	1	0.021	2.407