A comparative study to determine the impact of double lockdown on hospital visits, admissions, and patient outcomes in a tertiary care hospital



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ABSTRACT

Background: Unlike COVID 19 lockdown, very little is known about the impact of non-COVID 19 lockdown and two lockdowns (post abrogation of article 370 and post COVID 19) in series on health-care delivery system. Aims and Objectives: The aim of the study was to look for the impact of two lockdowns, separately and in combination, on health-care delivery system. Materials and Methods: Data of patients visiting the pediatric outpatient department, pattern of hospital admissions and patient outcomes 1 month and 6 months before and after two lockdowns were recorded and compared within a lockdown and with each other. Results: Fall in Outpatient visits and its persistence even after 6 months was more pronounced for post COVID 19 Lockdown or lockdown 2 (-73%VS-43% and + 195VS-61%). There was a statistically significant difference between admissions rates 1 month before and after lockdown 1 (post article 370 abrogation) as well as 1 month before and after lockdown 2 (P = 0.001; P < 0.0001). For the same time period, admission rates were significantly different for respiratory and gastrointestinal illnesses during the two lockdowns (<0.0001). Also, there was a significant difference between admissions rates 6 month before and after lockdown 1 and 6 months before and after lockdown 2 (P < 0.00001; P < = 0.02). There was a significant difference between hospital admission rates 1 month after lockdown 1 and lockdown 2 (<0.0001). There was also significant difference between clinical spectrum of admitted patients 1 month and 6 months after the two lockdowns (<0.03-<0.0001). Conclusion: Both Lockdowns had a significant negative impact on healthcare delivery system. However, post COVID-19 lockdown had a much

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Key words: COVID 19; Double lockdown; Children; Article 370; Unrest

INTRODUCTION

Infectious disease outbreaks are known to have a significant impact on community health-care delivery. COVID 19 lockdown also resulted in disruption of health care services throughout the world and affected significantly hospital outpatient visits and admissions. For Govt. of India imposed a lockdown on the eve of March 24, 2020, as a preventive measure to curb the spread of COVID 19 infection in the

community (Lockdown 2). Although it had a positive impact on flattening the COVID 19 curve, there was significant negative impact on health-care delivery system throughout the country. Union territory of Jammu and Kashmir faced administrative restriction akin to lockdown to prevent any possible unrest following the abrogation of article 370 on August 5, 2019 (lockdown 1). All the studies conducted so far have focused on impact of COVID 19 lockdown on hospital visits and admissions. To the best of our knowledge,

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this is the first study to determine the impact of COVID 19 lockdown and the impact of post article 19 abrogation restrictions separately and in combination on hospital visits, admissions, and patient outcomes.

Aims and objectives

The aim of the study was to look for the impact of two lockdowns, separately and in combination, on health-care delivery system.

MATERIALS AND METHODS

This study was conducted in the Department of Pediatrics Government Medical College Anantnag. Study was conducted after taking clearance from hospital ethics committee. As the study was based on hospital records and the data that would reveal the identity of patients were not recorded, informed consent was not taken from the parents or the guardians of the patients. We collected 1 month data on either side of the date of COVID 19 lockdown (lockdown 2) and administrative restrictions imposed after abrogation of article 370 (lockdown 1). In addition to that we collected data in the 7th month following the either lockdown. Seventh month was chosen as the second lockdown/administrative restrictions took place exactly after 7 month of the first lockdown and

we needed to collected data separately 1 month before the 2nd lockdown date as well. Data for hospital visits, admission rates, clinical spectrum of admitted patients, and their outcomes were recorded as per a predesigned pro forma, Comparisons of events within a given lockdown period and comparison of events of two lockdowns was made separately. Data were compared to look for a statistical significance, if any.

RESULTS

Results of impact of two lockdowns on outpatient department (OPD) visits, hospital admissions and patient outcomes are depicted in Table 1. Statistical significance, if any, of all these variables are depicted in rest of the (Tables 2-8). Outpatient visits fell by 1/2 after the lockdown 1 and by $2/3^{\rm rd}$ after the lockdown 2 (-45%/-73%). While in the 6 months of lockdown 1 OPD visits increased by more than twice, after 6 months of lockdown 2 it did not recover even to the base line (+195%/-61%); (Table 1).

Admission rates, mortality, and referral rates were highest in the month preceding the second lockdown as compared to lockdown 1 (909, 2,105/666, 1, 50). The highest rates of admissions were for gastrointestinal and respiratory complaints (Table 1). There was a significant difference

Date	05-02-19 to 04-03-19	05-07-19 to 04-08-19	05-08-19 to 04-09-19	05-01-20 to 04-02-20	25-02-20 to 24-03-20	25-03-20 to 24-04-20	25-09-20 to 24-10-20
	6 th months prior to lockdown 1	Month preceding lockdown 1	Month post lockdown 1	6 th months after lockdown 1	Month before lockdown 2 (6 month after lockdown 1)	Month post lockdown 2	6 months after lockdown 2
OPD visits/ ad-missions	13411/439	8817/666	4880/504	18812/552	26033/909	7056/437	10216/517
Change in % age lockdown 1	+152/-37	100/100	-45/-24	+113/-17	+195/+36	-20/-34	+16/+22
Change in % age lockdown 2					100/100	-73/-52	-61/-43
Referral's/deaths	54/0	50/1	32/1	68/1	105/2	90/0	65/0

Table 2: OPD visits and admissions 1 months before and 1 month after lockdown 1 and 2							
	Age group	05-07-19 to 04-08-19	05-08-19 to 04-09-19	P-value	25-02-20 to 24-03-20	25-03-20 to 24-04-20	P-value
OPD visits		8817	4880	NA	26033	7056	NA
Admissions	1 M–1 year	270	186	0.001	338	206	< 0.0001
	1–3 years	181	137		283	100	
	3–6 years	156	98		150	108	
	6–12 years	48	61		110	18	
	>12 years	11	22		28	05	
Total		666	504		909	437	
Referral's/deaths	1 M–1 year	31/1	20/0	0.99	62/2	41/0	0.38
	1–3 years	11/0	08/1		36/0	19/0	
	3–6 years	8/0	04/0		07/0	08/0	
	6–12 years	0/0	0/0		0/0	02/0	
	>12 years	0/0	0/0		0/0	0/0	
Total		50/1	32/1		105/2	90/0	

between admissions rates 1 month before and after lockdown I as well as lockdown 2 (P=0.001; P<0.0001). For the same time period, admission rates were significantly different for respiratory and gastrointestinal illnesses during both the lockdowns (<0.0001); (Tables 2-4).

Furthermore, there was a significant difference between admissions rates 6 months before and after lockdown I as well as lockdown 2 (P<0.00001; P≤0.02) (Table 5). For

Table 3: OPD visits and admissions 6 months after 1st and 2nd lockdown

Age group 05-01-20 to 25-09-20 to P-

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	Age group	05-01-20 to 04-02-20	25-09-20 to 24-10-20	P- value				
OPD visits		18812	10216	NA				
Admissions	1 M–1 year	226	214	0.6				
	1–3 years	164	162					
	3–6 years	92	70					
	6–12 years	55	59					
	>12 years	15	12					
	Total	552	517					
Referral's/	1 M–1 year	30/0	46/0	0.006				
deaths	1–3 years	22/0	09/0					
	3–6 years	16/01	07/0					
	6–12 years	0/0	03/0					
	>12 years	0/0	0/0					
	Total	68/1	65/0					

the same time period, admission rates were significantly different for respiratory and gastrointestinal illnesses during both the lockdowns (<0.0001; Table 6).

In addition to this there was a significant difference in hospital admission rates and clinical spectrum of admitted patients 1 month after lockdown 1 and lockdown 2 (<0.05); (Tables 7 and 8) with lesser admission in the month following lockdown 2. Highest admission rate was for the children in the age group of 1 month–1 year (1440) followed by those of 1–3 years of age (1027). Highest referral rates and mortality were in the month preceding the second lockdown (P<0.006); (Table 3).

DISCUSSION

Abrogation of the article 370 for the state of J and K took place on 05/08/2019 when it was split between two union territories of J and K and Ladakh. To prevent any law and order problems, strict restrictions were imposed akin to a complete lockdown (lockdown 1). After the lockdown 1 imposition date, outpatient hospital visits fell by 45% as compared to the month just preceding the date of lockdown. This might have happened for restricted

Table 4: Clinic	cal spectrum o	f admitted pati	ients 1 month	before and	after lockdow	n 1and 2	
Organ system involved	Age group	05-07-19 to 04-08-19	05-08-19 to 04-09-19	P-value	25-02-20 to 24-03-20	25-03-20 to 24-04-20	P-value
GIT	1 M-1Y	8	160	<0.0001	139	73	<0.0001
	1–3 years	13	48		12	28	
	3–6 years	16	84		65	17	
	6–12 years	16	16		4	27	
Total	•	53	308		220	145	
Respiratory	1 M–1 year	12	55	< 0.0001	153	94	< 0.0001
. ,	1–3 years	19	35		135	55	
	3–6 years	16	22		45	48	
	6–12 years	28	13		56	3	
Total	,	75	125		389	200	
Renal	1 M-1 year	6	6	379	6	8	0.002
	1–3 years	3	2		5	11	
	3–6 years	4	6		18	12	
	6–12 years	0	4		13	0	
Total	·	13	18		42	31	
CNS	1 M–1 year	8	12	0.78	16	9	0.05
	1–3 years	3	8		19	6	
	3–6 years	3	9		11	14	
	6–12 years	3	8		19	6	
Total	·	17	37		65	35	
CVS	1 M-1 year	2	2	0.42	8	3	< 0.0001
	1–3 years	4	2		18	1	
	3–6 years	4	5		0	12	
	6–12 years	0	3		15	2	
Total	·	10	12		41	18	
Others	1 M-1 year	150	40	< 0.0001	36	19	0.91
	1–3 years	96	85		18	9	
	3–6 years	67	29		11	5	
	6–12 years	17	4		8	6	
Total	, ,	330	158		73	39	
Grand total		498	658		830	468	

Table 5: OPD visits and admissions 1 month after lockdown 1 and lockdown 2

	Age group	05-08-19 to 04-09-19	25-03-20 to 24-04-20	P-value			
OPD visits		4880	7056	<0.0001			
Admissions	1 m–1	186	206				
	year						
	1–3 years	137	100				
	3–6 years	98	108				
	6–12	61	18				
	years						
	>12 years	22	05				
Total		504	437				
Referral's/	1 m–1	20/0	41/0	0.96			
deaths	year			referrals			
	1–3 years	08/1	19/0				
	3–6 years	04/0	08/0				
	6–12	0/0	02/0				
	years						
	>12 years	0/0	0/0				
Total		32/1	90/0				

Table 6: Clinical spectrum of admitted patients 1 month after lockdown 1 and lockdown 2

Organ system involved Age group 04-09-19 04-09-19 04-09-19 24-04-20 24-04-20 P-value 24-04-20 24-04-20 GIT 1 m-1 year 1-3 years 48 28 3-6 years 6-12 years 16 27 25-03-20 to 24-04-20 Total 308 145 Respiratory 1 m-1 year 1-3 years 35 55 3-6 years 6-12 years 13 3 3 0.002 Total 1 m-1 year 125 200 Renal 1 m-1 year 125 200 Renal 1 m-1 year 6 8 0.03 1-3 years 2 11 3-6 years 6 12 6-12 years 4 0 0 CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 6 12 9ears 6-12 years 8 6 6 3-6 years 9 14 6-12 years 8 6 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 5 5 12 6-12 years 5 12 6-12 years 5 12 6-12 years 7 12 12 18 Others 1 m-1 year 40 19 40 19 40.0001 1-3 years 3-6 years 85 9 3-6 years 6-12 years 85 9 3-6 years 95 5 12 6-12 years 85 9 9 5 6-12 years 95 5 6-12 years	month ar	month after lockdown 1 and lockdown 2								
1-3 years	system	Age group			P-value					
3-6 years	GIT	1 m–1 year	160	73	<0.0001					
Total Respiratory Total Total Total Total Renal Total		1–3 years	48	28						
Total 308 145 Respiratory 1 m-1 year 55 94 0.002 1-3 years 35 55 3-6 years 22 48 6-12 years 13 3 3 Total 125 200 200 Renal 1 m-1 year 6 8 0.03 1-3 years 2 11 3-6 years 6 12 6-12 years 4 0 0 0 0 Total 1 m-1 year 12 9 0.56 0			84	17						
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1–3 years 35 55 3–6 years 22 48 6–12 years 13 3 Total 125 200 Renal 1 m–1 year 6 8 0.03 1–3 years 2 11 3–6 years 6 12 6–12 years 4 0 Total 18 31 CNS 1 m–1 year 12 9 0.56 1–3 years 8 6 3–6 years 9 14 6–12 years 8 6 3–6 years 9 14 6–12 years 8 6 Total 37 35 CVS 1 m–1 year 2 3 0.47 1–3 years 2 1 3–6 years 5 12 6–12 years 3 2 Total 12 18 Others 1 m–1 year 40 19 <0.0001 1–3 years 85 9 3–6 years 29 5 6–12 years 45 6	Total		308	145						
3-6 years 22 48 6-12 years 13 3 Total 125 200 Renal 1 m-1 year 6 8 0.03 1-3 years 2 11 3-6 years 6 12 6-12 years 4 0 Total 18 31 CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 3-6 years 9 14 6-12 years 8 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 40 6	Respiratory	1 m-1 year	55	94	0.002					
Total		1–3 years	35	55						
Total 125 200 Renal 1 m-1 year 6 8 0.03 1-3 years 2 11 3-6 years 6 12 6-12 years 6 12 6-12 years 6 12 6-12 years 9 0.56 1 0.56 1 1 9 0.56 0.56 1 0.2 1 0.56 0.56 1 0.56 1 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47		3–6 years	22	48						
Renal 1 m-1 year 6 8 0.03 1-3 years 2 11 0 3-6 years 6 12 0 6-12 years 4 0 0 Total 18 31 0 CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 6 6 3-6 years 9 14 6 6 6 14		6-12 years	13	3						
1–3 years 2 11 3–6 years 6 12 6–12 years 4 0 Total 18 31 CNS 1 m–1 year 12 9 0.56 1–3 years 8 6 3–6 years 9 14 6–12 years 8 6 Total 37 35 CVS 1 m–1 year 2 3 0.47 1–3 years 2 1 3–6 years 5 12 6–12 years 3 2 Total 12 18 Others 1 m–1 year 40 19 <0.0001 1–3 years 85 9 3–6 years 29 5 6–12 years 4 6	Total		125	200						
3-6 years 6 12 6-12 years 4 0 Total 18 31 CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 3-6 years 9 14 6-12 years 8 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6	Renal	1 m–1 year	6	8	0.03					
Total Total Total Total CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 3-6 years 9 14 6-12 years 8 6 Total CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 6-12 years 3 2 Total Others 1 m-1 year 40 19 40 0.0001 1-3 years 85 9 3-6 years 9 5-12 years 40 6		1–3 years	2	11						
Total 18 31 CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 3-6 years 9 14 6-12 years 8 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6		3–6 years	6	12						
CNS 1 m-1 year 12 9 0.56 1-3 years 8 6 3-6 years 9 14 6-12 years 8 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6		6–12 years	4	0						
1–3 years 8 6 3–6 years 9 14 6–12 years 8 6 Total 37 35 CVS 1 m–1 year 2 3 0.47 1–3 years 2 1 3–6 years 5 12 6–12 years 3 2 Total 12 18 Others 1 m–1 year 40 19 <0.0001 1–3 years 85 9 3–6 years 29 5 6–12 years 4 6	Total		18	31						
3-6 years 9 14 6-12 years 8 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6	CNS	1 m-1 year	12	9	0.56					
6-12 years 8 6 Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001		1–3 years	8	6						
Total 37 35 CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 1 2 1		3–6 years	9	14						
CVS 1 m-1 year 2 3 0.47 1-3 years 2 1 3-6 years 5 12 6-12 years 3 2 1 12 18 0.0001 1		6-12 years	8	6						
1–3 years 2 1 3–6 years 5 12 6–12 years 3 2 Total 12 18 Others 1 m–1 year 40 19 <0.0001 1–3 years 85 9 3–6 years 29 5 6–12 years 4 6	Total		37	35						
3-6 years 5 12 6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6	CVS	1 m–1 year	2	3	0.47					
6-12 years 3 2 Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6		1–3 years	2	1						
Total 12 18 Others 1 m-1 year 40 19 <0.0001 1-3 years 85 9 3-6 years 29 5 6-12 years 4 6		3–6 years		12						
Others 1 m-1 year 40 19 <0.0001		6–12 years								
1–3 years 85 9 3–6 years 29 5 6–12 years 4 6				18						
3–6 years 29 5 6–12 years 4 6	Others		40	19	<0.0001					
6–12 years 4 6										
		•								
Total 158 39		6–12 years								
	Total		158	39						

moments of people and negligible available of transport facilities. This might have also happened for decreased hospital visits for no emergent and unnecessary visits. After 5 months OPD visits increased by 113% and after 6 months OPD visits increased by 195%. This can be explained by

gradual ease in restriction and decreased fear among people. It is important to mention that OPD visits in the month preceding lockdown 1 were much lower than the 6th month preceding it (8817/13411). It was possibly for the political uncertainty that was at its peak in the month preceding the lockdown 1 imposition date.

After COVID 19 lockdown (lockdown 2) was imposed on 25/03/2020 throughout India, OPD visits dropped sharply by 73% as compared to the month just preceding the lockdown 2. A similar pattern of hospital visits was observed throughout the world.⁴ It was for the fear of contacting COVID 19 at hospitals as well as for restrictions imposed on transport and moment of people. After 6 months, there was some recovery but OPD visits still remained lower by 61%. This was probably for the fact that even after 6 months of COVID 19 lockdown threat of contacting infection persisted.

After the lockdown 1 imposition date hospital admissions fell by 24% as compared to the preceding month (P=0.001). Decrease in hospital visits might have been a factor for decreased rate of hospital admissions. It may also be possible that out of fear sick people needing admission might have not visited hospitals even when it was essential. Perception of having a condition needing emergency care also varies among people and many a times people coming for a casual checkup to health-care facility are picked up by heath care professionals for a serious condition they would otherwise may be suffering from. After 6 months, admissions increased by 36%. This month also corresponds to the month preceding the lockdown 2 date and during this month maximum OPD visits and maximum admissions took palace.

As was true for other centers,⁴⁻⁷ after lockdown 2 imposition date, hospital admissions dropped sharply by 52% as compared to the preceding month (P<0.0001). After 6 months, there was some recovery but admissions still remained lower by 43%. Probably this was for the fact that the combination of lockdown and the fear of contacting COVID 19 infection was a much stronger force to determine rate of hospital admissions than the administrative lockdown alone.

Cases with respiratory and GIT symptoms were admitted significantly in higher number in the month immediately following the lockdown 1 date (P<0.0001). Even before the administrative lockdown (lockdown 1), there was a lot of fear among people that might have discourage sick from villages to visit city hospitals for fear of being caught under curfew that was expected to follow abrogation of article 370. After the abrogation of article 370, when people realized that there is no restriction for moments of acutely sick to the hospitals, sick people needing urgent medical help

Table 7: OPD visits and admissions 6 months before and after lockdown 1 and 2							
	Age group	05-02-19 to 04-03-19	05-01-20 to 04-02-20	P-value	05-08-19 to 04-09-19	25-09-20 to 24-10-20	P-value
OPD visits		13411	18812	NA	4880	10216	NA
Admissions	1 m–1 year	106	226	< 0.00001	186	214	0.02
	1–3 years	178	164		137	162	
	3–6 years	102	92		98	70	
	6–12 years	40	55		61	59	
	>12 years	13	15		22	12	
Total	•	439	552		504	517	
Referral's/deaths	1 m–1 year	32/0	30/0	0.319	20/0	46/0	0.5
	1–3 years	17/0	22/0	Referral	08/1	09/0	Referral
	3–6 years	05/0	16/01		04/0	07/0	
	6–12 years	0/0	0/0		0/0	03/0	
	>12 years	0/0	0/0		0/0	0/0	
Total	-	54/0	68/1		32/1	65/0	

Table 8: Clinical spectrum of admitted patients 6 months after lockdown down 1 and lockdown 2

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Organ system involved	Age group	05-01-20 To 04-02-20	25-09-20 To 24-10-20	P-value
GIT	1 m-1 year	89	55	<0.0001
	1–3 years	88	66	
	3–6 years	103	12	
	6–12 years	13	9	
	Total	293	142	
Respiratory	1 m–1 year	39	98	< 0.0001
	1–3 years	10	84	
	3–6 years	9	42	
	6–12 years	28	2	
	Total	86	226	
Renal	1 m–1 year	2	9	0.769
	1–3 years	0	3	
	3–6 years	1	2	
	6-12 years	0	0	
	Total	3	14	
CNS	1 m-1 year	3	21	0.19
	1–3 years	0	40	
	3–6 years	0	11	
	6–12 years	0	4	
	Total	3	76	
CVS	1 m–1 year	4	4	0.014
	1–3 years	0	5	
	3–6 years	9	2	
	6–12 years	0	3	
	Total	13	14	
Others	1 m–1 year	89	35	< 0.0001
	1–3 years	66	19	
	3–6 years	63	11	
	6–12 years	2	19	
	Total	220	84	
Grand total		618	556	NA

started visiting hospital again. However, there was significant decrease in admission due of other aliments (330 vs. 150: P<0.0001). This may be for the fact that respiratory problems like pneumonia and difficulty in breathing and gastrointestinal problems (like diarrhea) are more often than other illnesses recognized and perceived by the people as the real emergencies to need urgent medical attention.

This was totally different from what was observed throughout world during post COVID lockdown⁴⁻¹⁰ and even in our own study after COVID 19 lockdown. We also observed decrease in post COVID lockdown hospital admissions. We observed hospital admissions for respiratory and gastrointestinal complaints significantly decreasing post lockdown 2 (P<0.0001). In lockdown 2, patients with renal (P<002) and CVS (P<0.0001) complaints too were admitted significantly in higher numbers in the preceding month. Despite having no restrictions for seeing emergency medical care at hospital, caregivers feared for their own lives and tried to avoid visiting hospitals along with sick. In addition social distancing and hand washing and sanitization contributed to decrease in transmission of communicable diseases.

As compared to the month following lockdown 1, hospital admission were significantly lower in the month following lockdown 2 (P<0.0001). Excluding admissions for respiratory complaints, admissions for all other categories were significantly lower (<0.05). More admissions for respiratory complaints (P<0.0001) were probably for the fact that second lockdown took place during the peak season of respiratory problems.

Hospital admissions 6 months before the lockdown 1 were significantly lower than that of 6 months after [(439/552; P<00001); (Table 6)]. This might have been for the fact that lesser OPD visits took place 6 months before the first lockdown. However, it was difficult to explain the reason for less OPD visits during that period. Hospital admissions 6 months before the lockdown 2 were also significantly lower as compared to admissions 6 months after (P<0.02). This might have been for the fact that 6th month preceding COVID 2 lockdown was coinciding with the post lockdown month of lockdown 1. Hospital admissions 6 months after lockdown 1 were much higher than that of lockdown 2. Not only the hospital admissions but differential admissions for

respiratory and gastrointestinal were significantly higher 6 months after lockdown 1 (P<0.0001). This might be again explained by the persistent psychological fear of contacting COVID.

Highest referral rates and mortality were also in the month preceding the second lockdown (6 months after first lockdown) and it was significantly higher than that of lockdown 2 (p<0.006). This is the month in which maximum admissions took place. This suggests that OPD visits influence not only hospital admissions but also referrals and mortality. However, it cannot be overemphasized that the hospital mortality and referrals may not be reflective of morbidity and mortality in the community during the lockdown period.

Limitations of the study

As our hospital is the pediatric hospital of a newly created medical college, most of the patients needing critical care were shifted to a higher centre. This has negatively affected the assessment of true mortality and outcome of critically ill patients.

CONCLUSION

Both lockdowns had a significant negative impact on healthcare delivery system. However, post COVID-19 lockdown had a much stronger impact.

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