Research Article

Effect of COVID-19 Pandemic on Accidental Ingestions in Children: Observational Study

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Abstract

Coronavirus disease-19 (COVID-19) was declared by the World Health Organization (WHO) as a global pandemic on March 2020. Several measures have been attempted to contain the spread of the virus including school closures and lockdown. These measures have resulted in children staying at home with potential hazard exposure such as accidental drug or foreign body ingestions. In this study, we investigate the impact of COVID-19-related measures on admissions of children with accidental foreign body or drug ingestion. All accidental ingestion admissions to pediatric wards at Al-Amiri hospital during the pandemic from March 2020 till February 2021 were retrospectively reviewed. They were compared with admission data from the pre-pandemic period from March 2019 till February 2020. There were 90 admission with accidental ingestion during the pandemic compared to 138 admissions in the pre pandemic period. The mean age of admission during non-COVID-19 period was 3.9 ± 2.6 years, and 4.1 ± 2.9 years during pandemic period. The most common cause of accidental ingestion in children in both periods was medication ingestion. Coin ingestion was the second common cause during the pandemic compared to detergent in

the pre-pandemic period. During COVID-19 pandemic, there was a reduction in hospitalization with accidental ingestion. However, this should emphasize the significance of family availability and constant observation of children at home as an important safety measure.

Keywords: Drug; Foreign body; Ingestion; Children; Pediatric; COVID-19

1. Introduction

Coronavirus disease-19 (COVID-19) is a new emerging disease affecting millions of people around the world [1]. This disease is caused by a novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [2]. COVID-19 was declared by the World Health Organization (WHO) as a global pandemic on March 11, 2020 [3]. During this pandemic, governments have applied many measures to minimize the spread of the virus including school closures and lockdown [4, 5]. The first confirmed COVID-19 case in Kuwait was detected on February 24, 2020 [6]. Since then, the country was between full lockdown and partial curfew measures [5, 6]. In addition, schools and day cares were closed forcing children to stay at home [5, 6]. These two measures had resulted in lifestyle change of families and children leading to an increased burden on families managing their children at home with potential hazard exposure [4, 7, 8]. In India, the national lockdown had led to increase in cases of foreign body lodgments in ears, nose, or throat among children [9]. In Italy, a dramatic increase in batteries ingestions in children during the lockdown was observed [7]. We aim in this study to evaluate the impact of COVID-19-related measures on the number of cases of accidental foreign body or drug ingestion among children compared to the preceding year.

2. Materials and Methods

This is a retrospective chart review of all accidental ingestion admissions to pediatric wards at Al-Amiri hospital during the pandemic from March 2020 till February 2021. This was compared with data from the pre-pandemic admissions from March 2019 till February 2020. Data were collected from patients' medical charts after being retrieved from the medical record department. The collected data included age, gender, month of admission, type of ingested material, and outcome. The subjects were all children aged 12 years or less admitted with confirmed or suspected accidental foreign body or drug ingestion. All children with food impaction or aspiration were excluded from the study. We analyzed the data and computed descriptive analysis of all variables using Statistical Package for Social Sciences (SPSS) version 27 (International Business Machines (IBM) Corporation, Chicago, IL, U.S.). This study was reviewed and ethically approved by the Review Board of the Ministry of Health of Kuwait.

3. Results

There were 138 cases of accidental ingestions admitted during non-COVID-19 period (March 2019 to February 2020) representing 4.5% of all admissions. There were 90 cases admitted in the COVID-19 pandemic period (March 2020 to February 2021) representing 5.7% of all admissions. Figure 1 compares the number of cases of accidental ingestions admitted per month during the two periods of the study. The mean age of admission during non-COVID-19 period was 3.9 ± 2.6 years, and 4.1 ± 2.9 years during pandemic period. Toddlers were the

highest group in both periods (41% in the non-COVID-19 and 44% in the COVID-19 period). Males were more dominant in both periods; 80 (58%) during non-COVID-19 period, and 48 (53.3%) during COVID-19 pandemic.

Solid objects ingestion was found in 76 cases (55%) in the non-COVID-19 period, and in 53 cases (59%) in the COVID-19 period. Endoscopic or bronchoscopic removal of the ingested solid was needed in 25 patients (33%) in the non-COVID period and in 16 cases (30%) during COVID time. The most common cause of accidental ingestion in children in both periods was medication. Coin ingestion was more documented during the pandemic in 16 cases (18%) compared to 15 cases (11%). Patients' characteristics and details of the ingested items are listed in table 1. The means and proportions of the two periods of the study were compared for significance and none was significantly associated.

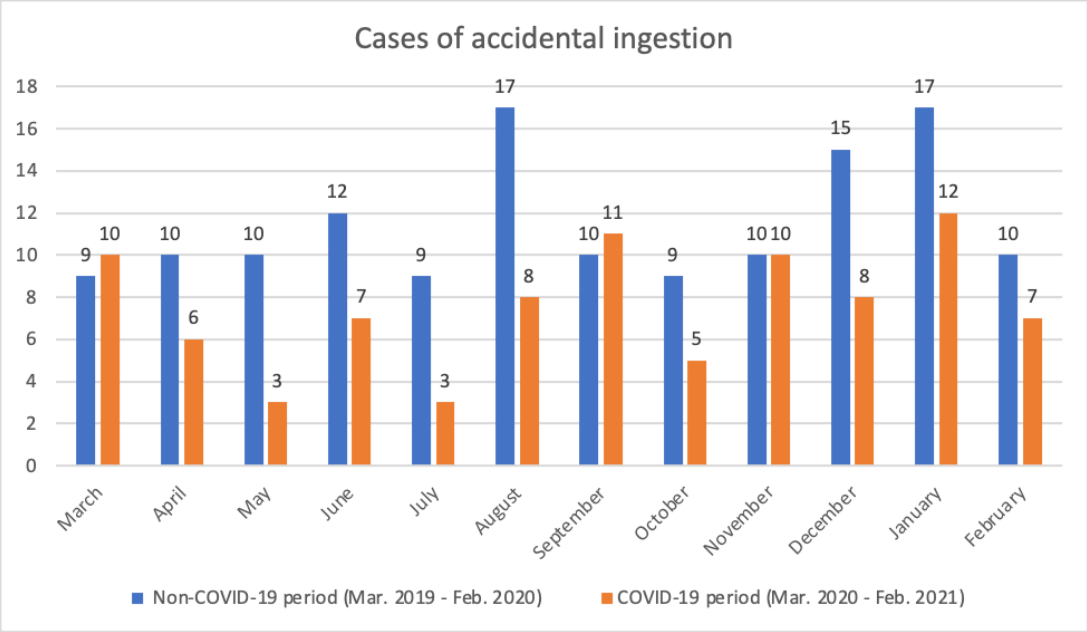

Figure 1: Cases of accidental ingestions.

Characteristics	**Mar. 2019 – Feb. 2020**	**Mar. 2020 – Feb. 2021**
Total cases of FB ingestions	138 cases	90 cases
Age in years range (mean ± SD)	0.6 – 11.6 (3.9 ± 2.6)	0.9 – 11.9 (4.1 ± 2.9)
Age groups (N, %)		
Infants (< 1 year)	10 (7.2%)	4 (4.5%)
Toddlers (1-3 years)	57 (41.4%)	40 (44.5%)
Pre-school age (3-5 years)	35 (25.4%)	25 (27.7%)
School age (5-12 years)	36 (26%)	21(23.3%)
Gender (N, %)		

Male	80 (58%)	48 (53.3%)
Female	58 (42%)	42 (46.7%)
Nationality (N, %)		
Kuwaiti	94 (68.1%)	62 (68.9%)
Non-Kuwaiti	44 (31.9%)	28 (31.1%)
Liquid FB or drug ingestion (N, %)	62 (44.9%)	37 (41.1%)
Solid FB ingestion (N, %)	76 (55.1%)	53 (58.9%)
Removed by procedure	25 (32.9%)	16 (30.1%)
Passed by itself	51 (67.1%)	37 (69.9%)
Type of foreign body (N, %)		
Button battery	17 (12.3%)	10 (11.1%)
Coin	15 (10.9)	16 (17.8%)
Detergent	18 (13%)	5 (5.6%)
Drug	41 (29.7%)	26 (28.9)
Kerosene	1 (0.7%)	4 (4.4%)
Magnet	5 (3.6%)	5 (5.6%)
Metal object	23 (16.7%)	11 (12.2)
Other*	5 (3.6%)	0 (0%)
Pesticide	2 (1.4%)	2 (2.2%)
Plastic object	11 (8%)	11 (12.2%)

FB = foreign body
* = 2 marble glass balls, 1 glass piece, 1 sticker, and 1 wooden toothpick

Table 1: Patients' characteristics and nature of ingested materials.

4. Discussion

Nation-wide lockdown and infection-containment measures during COVID-19 crisis has abruptly modified the lifestyle in many societies [5, 7, 8, 9]. Apart from posing a health-related threat, COVID-19 pandemic had impacted the well-being of children and families such as financial insecurity, caregiving burden, and confinement-related stress [9]. During COVID-19 pandemic, school closure, lockdown and parents' reluctance to visit the hospitals have reduced hospitalizations and pediatric emergency visits [10, 11]. In our study, there was a reduction of cases of accidental ingestion during the pandemic compared to the pre-pandemic admissions. Lelak and her colleagues have reported a similar finding of reduction in accidental ingestions by 6.3% in United Stated from March to December 2020 compared to the pre-pandemic period [12].

Our study showed a unique finding of decreased rate of admissions especially during nationwide partial curfew and full lockdown (from March 22, 2020 till August 30, 2020). We speculate that school closure during lockdown led to constant caregiving observation from parents and caregivers at home. Moreover, this could be due to the fact that parents were

reluctant to visit the hospitals during the pandemic crisis and observed their children at home without consulting medical services. The number of cases declined during the full national lockdown (from May 10, 2020 till May 30, 2020), but a rise in numbers of cases were noticed when the country started to open again. While medications ingestion was the most common cause of accidental ingestion in children in both periods in our study, there have been reports about other causes of ingestion during the pandemic. Antonio Pizzol and his colleagues have found a dramatic increase in batteries ingestions in children, a potentially fatal event, during the COVID-19 pandemic lockdown [7]. Hand sanitizers have become the newly recognized ingested material during the pandemic [13] Patider et al. have reported a 5-year-old child presenting with ataxia after ingestion of ethyl alcohol-based sanitizer [14].

5. Conclusions

In conclusion, during COVID pandemic there was a decline in the number of cases admitted with accidental ingestion among children compared to the pre-pandemic period. This was a result of the lock down and constant observation of families to their children at home. While medications were the main reason of accidental ingestion, it is important to note that globally during the pandemic, new causes for ingestion have emerged like batteries and sanitizer solutions. This mandates the need to re-advocate child safety at home among families in Kuwait. All medicine should be stored up, away, and out of sight and reach of children at all times. Toddlers should be monitored to avoid such incidences. Older children must be educated about the serious outcome related of foreign body ingestion.

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Conflict of Interest

None declared.

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