The Impact of COVID-19 on the Emergency Presentation of Hand Injuries

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Objectives

- Hand trauma incidence fluctuates with seasonal changes in activities & risk factors
- COVID-19 pandemic caused behavior changes that might affect hand injury incidence and pattern

Did the COVID-19 pandemic affect hand injury incidence and management?

Methods

- Retrospective chart review of patients presenting to ED at single institution (level 1 trauma center) with hand injury, identified via x-ray
- Pre-COVID (PC): March-May 2019
- During COVID (DC): March-May 2020
- Data collected: demographics, etiology, injury type, concomitant injuries, management, complications

Table 1: Assessment of Concomitant Injuries

	PC	DC	P Value	OR [CI]
Hospital Admission	87 (25.3%)	50 (30.1%)	0.591	1.168 [0.664 – 2.054]
Admitted to ICU	8 (2.3%)	5 (3%)	0.327	2.023 [0.494 – 8.28]
Long Bone Fracture	7 (2%)	8 (4.8%)	0.05	4.019 [1.002 – 16.124]
TBI	4 (1.2%)	8 (4.8%)	0.002	12.025 [2.502 – 57.79]
Spinal Cord Injury	1 (0.3%)	7 (4.2%)	0.004	34.024 [3.142 -368.406]
Burn	-	1 (0.6%)	0.993	-
Intraabdominal Injury	2 (0.6%)	2 (1.2%)	0.39	3.029 [0.242 -37.918]
Intrathoracic Injury	4 (1.2%)	4 (2.4%)	0.048	5.065 [1.016 – 25.25]
Other	16 (4.7%)	6 (3.6%)	0.066	0.26 [0.062 – 1.095]

Results

51.3% reduction in ED presentation of hand injuries DC (344 vs 147)

Significantly larger proportion of DC vs PC patients had/were:

- non-labor jobs****
- uninsured*
- injured at home***
- concomitant injuries (Table 1)
- tool-related* injuries
- high-energy*** injuries
- open* injuries
- open metacarpal** or middle phalanx* fractures
- closed intraarticular* fractures
- operative* management of fractures (Fig. 1)
- lacerations*
- laceration* or tendon* repairs performed at bedside (Fig. 2)
- long-term sensory nerve deficit*

Significantly smaller proportion of DC vs PC patients had closed transverse* fractures

No significant differences in comorbidities, smoking status, demographics (except more patients of unknown race*** DC)

* p<0.05, ** p<0.005, *** p<0.001, **** p<0.0001

Figure 1: Operative vs Non-operative Management

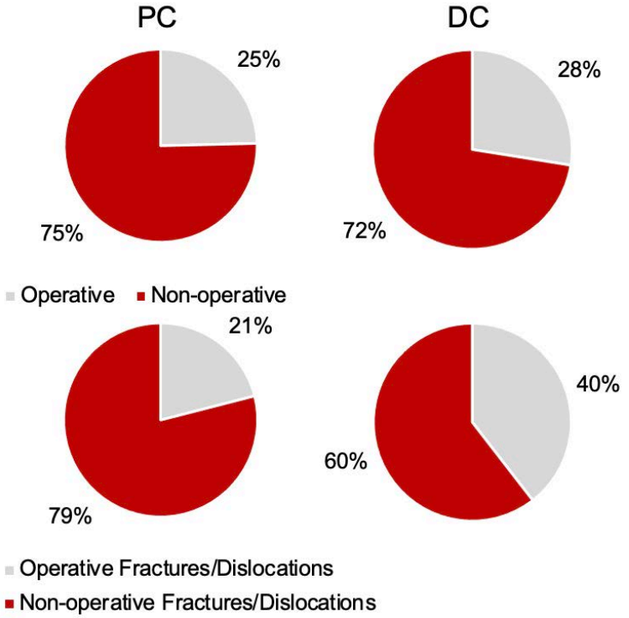


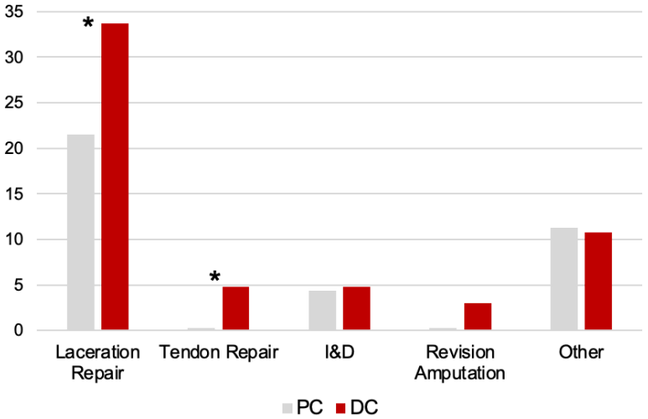
Table 2: Type of Injury

	PC	DC	P Value	OR [CI]
Energy of Injury				
High	79 (23%)	76 (45.8%)	< 0.001	4.808 [2.629 – 8.795]
Low	213 (61.9%)	90 (54.2%)	< 0.001	0.291 [0.163 - 0.517]
Undetermined	20 (5.8%)	-	0.995	-
Laterality of Injury				
Right	168 (48.8%)	88 (53%)	0.337	1.289 [0.768 – 2.164]
Left	174 (50.6%)	78 (47%)	0.337	0.776 [0.462-1.303]
Open Injury	133 (38.7%)	88 (53%)	0.016	1.921 [1.13-3.266]
Open Fracture	38 (11%)	30 (18.1%)	0.207	1.688 [0.748-3.81]
Open Dislocation	2 (0.6%)	3 (1.8%)	0.059	8.319[0.922-75.071]
Open Amputation	13 (3.8%)	11 (6.6%)	0.636	1.353 [0.386-4.739]
Open Nail Bed Involvement	22 (6.4%)	9 (5.4%)	0.030	0.182 [0.039-0.851]
Open Bone Exposure	12 (3.5%)	5 (3%)	0.561	0.633 [0.136-2.951]
Closed Injury	206 (59.9%)	76 (45.8%)	0.015	0.517 [0.304-.88]
Closed Fracture	167 (48.5%)	75 (45.2%)	0.603	0.867 [0.507-1.483]
Closed Dislocation	15 (4.4%)	13 (7.8%)	0.857	1.127 [0.307-4.143]
Closed Compartment Syndrome	0	0	-	-
Closed Nail Bed Involvement	1 (0.3%)	0	0.995	-
Closed – Other	7 (2%)	0	0.995	-

Conclusions

- Decrease in presentation of hand injuries to the ED – may be due to fear of entering hospitals during the pandemic or truly decreased injury incidence
- Increase in high energy and open injuries, as well as concomitant injuries – may explain increased operative management
- DC patients with soft-tissue injuries more often treated non-operatively at bedside
- Further studies are needed to assess severity of hand injuries and long-term patient outcomes during the pandemic

Figure 2: Management of Soft Tissue Injuries



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