



**“IMPACT OF COVID-19 PANDEMIC ON CRITICAL CARE MANAGEMENT IN
CHHATTISGARH INSTITUTE OF MEDICAL SCIENCES, BILASPUR,
CHHATTISGARH- A RETROSPECTIVE STUDY.”**

Anaesthesiology

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ABSTRACT

Background: The World Health Organization declared a Public Health Emergency of International Concern regarding COVID-19 on 30 January 2020, and later declared a pandemic on 11 March 2020. During the pandemic health services were affected heavily all branches of medical sciences were included in this calamity including the critical care facility. **Objective:** To evaluate the impact of Covid-19 Pandemic on critical care management in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh. **Method:** This retrospective clinical study is conducted in the department of Anesthesiology and Critical Care, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh. The 1 year ICU admission data from 20 March 2019 to 20 March 2020 is compared with the data from Covid-19 era from 20 March 2020 to 20 March 2021. Frequency tables are used to evaluate and measure the data from the study to describe the impact of pandemic. **Result:** The total ICU admission registered in Pre Covid-19 yr was 266 i.e. from 20 March 2019 to 20 March 2020 and the total ICU admission registered during covid-19 year was 252. Our data showed that during covid-19 pandemic the patients of 18-45 year age group were increased by 2.5%. Female IPD population was high in both years because of predominance of gynaecological cases 76.4% and 74.4% respectively; during the pandemic year the patients of lower and upper socioeconomic strata were increased. 90 out of 252(35.7%) patients had LSCS with Eclampsia, 17% patients were admitted and treated for LSCS with fetal distress, LSCS with APH were diagnosed in 14.6%, Laparotomy with Ectopic Pregnancy were found in 2.3% patients followed by Gravid Uterus with Hysterectomy 8.3% and perforations 4.3%. **Conclusion:** We observed in our study that in comparison to Pre Covid-19 yr there is slight decrease in total no. of ICU IPD during Covid-19 pandemic year i.e. 2%. %. Female IPD population was high in both years because of predominance of gynaecological cases. Major critical care management in ICU was almost remaining unaffected even during covid-19 pandemic.

KEYWORDS

Covid-19, Pandemic, IPD, ICU, critical care, Procedure.

INTRODUCTION

COVID-19 is the disease caused by a new corona virus called SARS-CoV-2. WHO first learned of this new virus on 31 December 2019, following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic of China.^{[1][2]} The most common symptoms of COVID-19 are fever, dry cough, fatigue other symptoms that are less common and may affect some patients include loss of taste or smell, nasal congestion, sore throat, headache, muscle or joint pain, different types of skin rash, nausea or vomiting, diarrhoea, chills or dizziness.^{[3][4]} Stay safe by taking some simple precautions, such as physical distancing, wearing a mask, especially when distancing cannot be maintained, keeping rooms well ventilated, avoiding crowds and close contact, regularly cleaning your hands, and coughing into a bent elbow or tissue.^{[5][6]} As of 28 May 2021, more than 170 million cases have been confirmed, with more than 3.51 million confirmed deaths attributed to COVID-19, making it one of the deadliest pandemics in history.^[7] The first case in Chhattisgarh state was found in capital Raipur on 19th March 2020.^[8] The first case in Bilaspur was found on 23rd March 2020.

The emergence of the novel virus SARS-CoV-2 has caused morbidity, mortality and societal disruption on a global scale. In the first wave of the pandemic, most planned surgery was stopped for several months but, after this, there were specific efforts made to restore surgical activity and to maintain this, even in the face of subsequent waves of pandemic activity. The extent of disruption of anesthetic and peri-operative activity in the second wave has not been clearly documented.

^{[9][10]} The main concern is that health services have been partially or completely disrupted in many countries and states. But the most common reasons for discontinuing or reducing services were cancellations of planned treatments, a decrease in public transport available and a lack of staff because health workers had been reassigned to support COVID-19 services. In one in five countries (20%) reporting disruptions, one of the main reasons for discontinuing services was a shortage of medicines, diagnostics and other technologies. Unsurprisingly, there appears to be a correlation between levels of disruption to services for treating dental patients and

the evolution of the COVID-19 outbreak in a country. Emergency health care services become increasingly disrupted as a country moves from sporadic cases to community transmission of the corona virus. Alternative strategies for continuing care being implemented like telemedicine to replace in-person consultations.^[11]

Objective:

To evaluate the impact of Covid-19 Pandemic on critical care management in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh.

MATERIAL AND METHOD

Method:

This retrospective clinical study is conducted in the department of Anesthesiology and Critical Care, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh. The 1 year ICU admission data from 20 March 2019 to 20 March 2020 is compared with the data from Covid-19 era from 20 March 2020 to 20 March 2021. Frequency tables are used to evaluate and measure the data from the study to describe the impact of pandemic.

Major Variables

- 1) Age
- 2) Gender
- 3) Socioeconomic status
- 5) ICU IPD data of pre Covid-19 year
- 6) ICU IPD data of Covid-19 year

RESULTS

This retrospective observational clinical study involved the ICU IPD data of pre Covid-19 year from 20 March 2019 to 20 March 2020 and data of first year of Covid-19 pandemic from 20 March 2020 to 20 March 2021. This study is conducted in department of Anesthesiology and Critical Care, CIMS hospital, Bilaspur Chhattisgarh. All IPD data from both years were thoroughly evaluated and studied. The results are as follows:

Age

In Pre Covid-19 yr i.e. from 20 March 2019 to 20 March 2020, 193 out of 266 ICU patients (72.5%) belonged to 18-45 years age group followed by 21.4% in >45 year group and only 6% of IPD were below 18 yrs of age. Whereas in Covid-19 yr i.e. from 20 March 2020 to 20 March 2021, 75% patients were in 18-45 year age group followed by 20.2% in >45 years age group and only 4.7% patients were below 18 yrs. This data shows that during covid-19 pandemic the patients of 18-45 year age group were increased by 2.5%.

Table 1 Age wise distribution of IPD patients

Age Range(yr)	< 18	18-45	>45	Total
Pre Covid-19 yr	16(6%)	193(72.5%)	57(21.4%)	266
Covid-19 yr	12(4.7%)	189(75%)	51(20.23%)	252

Gender

198 out of 266 (74.4%) IPD patients were female in Pre Covid-19 yr whereas male IPD patients were 25.5%, no patients of transgender community was reported. During Covid-19 pandemic year females were predominant in IPD i.e. 76.4% whereas male IPD population was 24.6%, no patients of transgender community was reported. Female IPD population was high in both years because of predominance of gynaecological cases.

Table 2 Gender wise Distribution of IPD patients

Gender	Male	Female	Total
Pre Covid-19 yr	68(25.5%)	198(74.4%)	266
Covid-19 yr	62(24.6%)	190(76.4%)	252

Socio-economic status

In Pre Covid-19 yr, 164 out of 266 (61.6%) patients of lower socioeconomic strata were admitted in ICU, on the other hand 36.8% patients were of middle class economy status and only 1.5% belonged to upper class. Whereas in Covid-19 pandemic year lower class patients reported was 68.2% and middle class were 26.9%. Data clearly showed that during the pandemic year the patients of lower and upper socioeconomic strata were increased.

Table 3 Socio-economic status wise distribution of patients

SES	Lower Class	Middle Class	Upper Class	Total
Pre Covid-19 yr	164(61.6%)	98(36.8%)	4(1.5%)	266
Covid-19 yr	172(68.2%)	68(26.9%)	12(4.7%)	252

Total ICU IPD data from 20 March 2019 to 20 March 2020

In Pre Covid-19 yr i.e. from 20 March 2019 to 20 March 2020 the total ICU IPD registered was 266, 107 out of 266(40.2%) patients had LSCS with Eclampsia, 18.4% patients were admitted and treated for LSCS with fetal distress, LSCS with APH were diagnosed and treated in 5.6%, Laparotomy with Ectopic Pregnancy were found in 3.7% patients followed by Gravid Uterus with Hysterectomy 7.5% and perforations 4.1%.

Table 4 Total ICU IPD data from 20 March 2019 to 20 March 2020

LSCS with Eclampsia	LSCS with fetal distress	LSCS with APH	Laparotomy with Ectopic Pregnancy	Gravid Uterus with Hysterectomy	Perforation	others	Total
107	49	15	10	20	11	54	266
40.2%	18.4%	5.6%	3.7%	7.5%	4.1%	20.3%	100%

Total ICU IPD data from 20 March 2020 to 20 March 2021

In Covid-19 pandemic yr i.e. from 20 March 2020 to 20 March 2021 the total ICU IPD registered was 252, 90 out of 252(35.7%) patients had LSCS with Eclampsia, 17% patients were admitted and treated for LSCS with fetal distress, LSCS with APH were diagnosed in 14.6%, Laparotomy with Ectopic Pregnancy were found in 2.3% patients followed by Gravid Uterus with Hysterectomy 8.3% and perforations 4.3%.

Table 5 Total IPD data from 20 March 2020 to 20 March 2021

LSCS with Eclampsia	LSCS with fetal distress	LSCS with APH	Laparotomy with Ectopic Pregnancy	Gravid Uterus with Hysterectomy	Perforation	others	Total
90	43	37	6	21	11	44	252

35.7%	17%	14.6%	2.3%	8.3%	4.3%	17.4%	100%
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DISCUSSION

The corona virus pandemic has disrupted all forms of health care services including communicable and non communicable diseases and patients seeking treatment for oral health diseases. In Chhattisgarh state the first case of Covid-19 was found in AIIMS, Raipur on 19th March 2020. The first case in Bilaspur was found on 23rd March 2020. The country has experienced the first nationwide lockdown from 24 March 2020 for 21 days limiting the movement of entire population as a preventive measure against the Covid-19 pandemic.^[12] The lockdown continued in different phases till 31 May 2020.

During this time the movement of entire population was limited which resulted in postponement and delaying of many health care services including critical care. Consequently the deterioration of health status of those patients occurred. Many patients reached the hospital amidst pandemic and benefited. Overall 46% of critical care management is disrupted by covid-19 the key reasons behind it is the reassignment of health staff from their primary service to support COVID-19 services.^[11] As the time passes the city Bilaspur chhattisgarh was also burdened with infected covid-19 positive patients, thus Medical College Hospital was transformed to Covid-19 isolation Centre later on Covid-19 Dedicated centre, entire staff from medical college and hospital was rearranged for the covid-19 care services which included the critical care staff also which further aided the disruption of emergency care services in our centre. The expansion of critical care capability has inevitably led to redeployment of staff, space, equipment and drugs intended for anaesthesia and peri-operative care.^[13] **Dobbs T, et al.** found in their study that other sources make similar estimates of surgical workload lost, with numbers of patients added to waiting lists being estimated as approximately 1.5–2 million.^[14] There is some evidence that samples from hospitals with less systemic stress. The hospitals that responded, likely to represent between a third and half of all critical care units, reported approximately 900 mutual aid admissions in December 2020 to January 2021. This is broadly consistent with data from the Intensive Care Research and Audit Centre which recorded 1971 transfers between critical care units in December 2020 and January 2021, including 1634 for mutual aid.^[15]

CONCLUSION

We observed in our study that in comparison to Pre Covid-19 yr there is slight decrease in total no. of ICU IPD during Covid-19 pandemic year i.e. 2%. Female IPD population was high in both years because of predominance of gynaecological cases. Major critical care management in ICU was almost remaining unaffected even during covid-19 pandemic.

REFERENCES

1. Sun J, He W, Wang L, Lai A, Ji X, Zhai X, et al. (2020). "COVID-19: Epidemiology, Evolution, and Cross-Disciplinary Perspectives". *Trends in Molecular Medicine*. 26 (5): 483–495.
2. "WHO Points to Wildlife Farms in Southern China as Likely Source of Pandemic". *NPR*. 15 March 2021.
3. *Islam MA (November 2020)*. "Prevalence of Headache in Patients with Corona virus Disease 2019 (COVID-19): A Systematic Review and Meta-Analysis of 14,275 Patients". *Frontiers in Neurology*. 11: 562634.
4. *Saniasiaya J, Islam MA (April 2021)*. "Prevalence of Olfactory Dysfunction in Corona virus Disease 2019 (COVID-19): A Meta-analysis of 27,492 Patients". *The Laryngoscope*. 131 (4): 865–878.
5. "Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission". *U.S. Centers for Disease Control and Prevention (CDC)*. 28 June 2020.
6. "Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission". *COVID-19 Published Science and Research*. *U.S. Centers for Disease Control and Prevention (CDC)*. Retrieved 30 October 2020.
7. "COVID-19 Dash board by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)". *Arc GIS*. Johns Hopkins University. Retrieved 1 June 2021.
8. "Covid-19 in Chhattisgarh". *Covid-19 India*. Retrieved 14 May 2020.
9. Kohn WG, Harte JA, Malvitz DM, et al. "Guidelines for infection control in dental health care settings – 2003". *Journal of the American Dental Association*. American Dental Association: 2004.
10. Bolyard EA, Tablan OC, et al. "Guideline for infection control in healthcare personnel". *Infect Control Hosp Epidemiol*. 1998; 19(6):407–63.
11. *Journal of Oral Health*. Volume 9, Issue 2, February 2021.
12. Gettleman, Jeffrey; Schultz, Kai (24 March 2020). "Modi Orders 3-Week Total Lockdown for All 1.3 Billion Indians". *The New York Times*. ISSN 0362-4331.
13. *Intensive Care National Audit and Research Centre, ICNARC report on COVID-19 in critical care: England, Wales and Northern Ireland*. 2021.
14. T D Dobbs, J A G Gibson, A J Fowler, T E Abbott, T Shahid, F Torabi, R Griffiths, R A Lyons, R M Pearce, IS Whitaker *medRxiv* 2021.02.27.21252593.
15. *Intensive Care National Audit and Research Centre*. Table appendix. 2021. <https://www.icnarc.org/Our-Audit/Audits/Cmp/Reports> (accessed 08/04/2021).