APAMI2020 Last Minute Papers Presentation Session | APAMI 2020 | Last Minute Papers Presentation Session
Medical Informatics for COVID-19
Sun. Nov 22, 2020 9:30 AM - 11:00 AM Room E-1 (Congress center 5F - Conference Room 52)

[AP2-E1-1-03] Continuum of Care for Non-Communicable Diseases and Dialysis Services during COVID-19 Pandemic in Rural India: Role of Telehealth

Balaji Gummidi[1], *Oommen John[1,2], Vivekanand Jha[1,2,3] (1. The George Institute for Global Health,UNSW, India, 2. Manipal Academy of Higher Education, India, 3. George Institute for Global Health, University of Oxford, UK)

Keywords: COVID 19, Knowledge, Non-Communicable Disease, Continuum of Care, Telemedicine

COVID-19 pandemic has resulted in disruption to routine health services delivery as strict lockdowns were implemented in India. We assess the perceptions about COVID19, impact of the lockdown on access to health services and continuum of care for Non-Communicable Diseases among a cohort of adults in rural India. We conducted this mixed methods study, administered through a structured telephonic questionnaire and interview to determine the awareness, perceptions and their compliance to ongoing treatment schedules. Overall, 68% participants exhibited adequate knowledge of symptoms of COVID19, while 43% were not aware of the mode of transmission of the virus 822 (36.1%) participants reported at least one NCD condition. Among these, 115 (14%) missed their follow visit, 110 (13.4%) reported facing challenges in medication procurement and (11.6%) either developed new complaints or experienced worsening of pre-existing symptoms. 233 (28.5%) used a telemedicine facility and took telephonic advice from (private) physicians. Our findings imply the need for the future guidelines on adaptation of telehealth approaches within health systems to maintain continuum of care.

Continuum of care for Non-Communicable Diseases and dialysis services during COVID-19 pandemic in Rural India: Role of Telehealth

Balaji Gummidi[a], Oommen John[a, b*], Vivekanand Jha[a, b, c]

[a] *George Institute for Global Health, UNSW, India*
[b] *Manipal Academy of Higher Education, India*
[c] *School of Public Health, Imperial College London, UK, Oxford, UK*

Abstract

COVID-19 pandemic has resulted in disruption to routine health services delivery as strict lockdowns were implemented in India. We assess the perceptions about COVID-19, impact of the lockdown on access to health services and continuum of care for Non-Communicable Diseases among a cohort of adults in rural India. We conducted this mixed methods study, administered through a structured telephonic questionnaire and interview to determine the awareness, perceptions and their compliance to ongoing treatment schedules. Overall, 68% participants exhibited adequate knowledge of symptoms of COVID-19, while 43% were not aware of the mode of transmission of the virus 822 (36.1%) participants reported at least one NCD condition. Among these, 115 (14%) missed their follow visit, 110 (13.4%) reported facing challenges in medication procurement and (11.6%) either developed new complaints or experienced worsening of pre-existing symptoms. 233 (28.5%) used a telemedicine facility and took telephonic advice from (private) physicians. Our findings imply the need for the future guidelines on adaptation of telehealth approaches within health systems to maintain continuum of care.

Keywords:

COVID-19, Knowledge, non-communicable disease, continuum of care, telemedicine

Introduction

India enforced a strict nation-wide lockdown starting 24th March with an aim to reduce the spread of infection and prepare the health systems capacity for the pandemic. The Government of India issued advisory for those with chronic conditions to avoid visits to healthcare facilities for non-emergency consultations [1]. Regular outpatient services were suspended. The 'Study to Test and Operationalize Preventive approaches for chronic kidney disease of undetermined aetiology (STOP CKDu)' is following up a community-based cohort of 2419 participants over the age of 18 years in 40 clusters (75 villages) of Srikakulam District in Andhra Pradesh, India since Feb 2018 [2]. Trained healthcare workers are responsible for making monthly contact with the study participants and ensuring the continuum of care. The state government suspended all outpatient services in the primary healthcare facilities and hospitals with effect from 26th of March 2020 with an aim to curtail COVID-19 transmission. In the next few days the state government of Andhra Pradesh launched a telemedicine service, accessible by a toll-free number. This facility allowed citizens of the state to seek information on COVID-19 and report symptoms. This facility also offered tele-consultations for those who needed medical attention for other conditions. We conducted this mixed methods study to assess the perception of participants in our cohort about COVID-19 and understand the impact of COVID-19 and the mobility restrictions posed by lockdown on the access to care and compliance to treatment among the adults with common NCDs.

Materials and Methods

This study was designed to access the awareness levels among the cohort participants regarding COVID-19 and to understand the practices with respect to the continuum of care for non-communicable diseases in this rural context during the lockdown. We administered a structured questionnaire and undertook qualitative interviews to address these objectives. We included seven questions to the STOP CKDu study follow up to determine the level of awareness and perceptions regarding COVID-19 and compliance to ongoing NCD treatment schedules. The questionnaire was administered from to 10th April to 24th May 2020, eight weeks into the lockdown. All responses were recorded into an electronic data collection tool as per the standard operating procedures of the project. The data were analysed in STATA version 16. Descriptive statistics have been provided for gender, age and disease conditions, knowledge on COVID and expressed as a proportion for categorical variables and mean (±SD, standard deviation). Pearson's Chi-squared test was used to assess the differences between means of independent and dependent categorical variables and P value of 0.05 was considered statistically significant.

Results

Out of the total of 2419 participants recruited between May and December 2018 in STOP CKDu cohort, 2276 participated in current telephonic survey (40 had died, 85 migrated and 18 could not be contacted). The mean age of participants was 45.8 (±13.3) years, and half of the study respondents were women. A total of 822 (36.1%) participants had at least one NCD, with 539 (23.7%), 221 (9.7%) and 62 (2.7%) having one, two or more than two conditions respectively. With respect to knowledge assessment on COVID-19 relating to disease presentation, ways of spread and measures to prevent its spread, overall, 68% participants exhibited good knowledge of the common symptoms and prevention. However, a substantial proportion (43%) were not aware of the mode of disease transmission. Out of a total of 822 respondents who were scheduled to have a medical follow up, 115 (14%) missed their follow up visit during the lockdown, 110 (13.4%) reported

facing challenges in medication procurement and 98 (11.6%) either developed new symptoms or experienced worsening of pre-existing symptoms. A total of 233 (28.5%) used the telemedicine facility and sought telephonic advice from (private) physicians, while 149 (18.2%) were able to undertake an in-person visit to their regular healthcare provider. We observed statistically significant differences between continuum of care and number of comorbid conditions ($p < 0.001$). Among those with end stage kidney disease, seven subjects were undergoing regular in-centre haemodialysis. Four of them reported missing their scheduled session. Out of these, one developed severe breathlessness, who was taken to a dialysis facility but died despite receiving dialysis.

Patient expectations and experiences during COVID-19:

The interviews revealed that a majority of the study respondents were not aware of the teleconsultation facility being offered by the Government. A small proportion of the respondents attributed that social media including message forwards through WhatsApp as the primary source of information regarding the telemedicine facility. Healthcare workers were aware of the service but described that they were uncertain their specific roles in the telemedicine as they did not receive any targeted training on how the service was to be used. Our interviews also revealed that the respondents who required medical advice typically contacted their routine private healthcare providers over telephone. In most instances their doctors advised them to continue ongoing medication or prescribed symptomatic treatment and recommended to follow up in-person once the lockdown restrictions are reversed.

Discussion

To the best of our knowledge, this is the first study conducted in India to assess the effect of the ongoing COVID-19 pandemic on access to health services for persons with non-communicable diseases living in rural areas. The findings highlight both the hardships faced by those with non-communicable diseases, attempts by the government to provide continuum of care and some innovative solutions that have emerged from the local ecosystem. The World Health Organization has highlighted that restrictive measures and travel restrictions to reduce the spread of infection during epidemics impact specifically the people living with NCDs by limiting their activity, ability to secure healthy foods, and access to preventive or health promotion services [3]. In our survey, we found participants exhibited good knowledge about the disease symptoms of COVID-19 and public health measures (social/physical distancing, lockdown and usage of masks or face covering). Our survey was conducted 8 weeks after the national lockdown. During this time, both the local health offices and various non-governmental agencies have been using different health communication strategies, including mass media such as television, IVRS phone calls, mobile caller tunes, text messages and social media platforms. Our study found that while the respondents were aware and practicing the public health measures, their awareness around the mode of transmission of SARS-CoV-2 coronavirus was low. Nevertheless, our findings highlight the potential of telemedicine approaches for providing continuum of NCD care in remote rural locations. It is worth pointing out that the telemedicine practice guidelines were issued only on 13th of April 2020. Providing medical advice without an in-person visit was illegal in India before this date. Moreover, despite government telemedicine services being available for free, patients preferred to contact their private doctors, perhaps because they were not aware of the new telemedicine facility or they were not confident of the quality of these services. A recent global survey undertaken among 155 countries by the WHO identified that in more than half (53%) of the countries treatment for hypertension have partially or completely disrupted services; 49% for treatment for diabetes and diabetes-related complications; 42% for cancer treatment, and 31% for cardiovascular emergencies [4]. Given the significant burden of NCDs in India, the challenge of maintaining continuity of care for NCD patients during the COVID-19 pandemic has enormous significance particularly from the perspective of health outcomes. One of the key strengths of our study is that the sample pool of the respondents is based on a well-designed cohort drawn through a population proportionate to size (PPS) methodology, and that a baseline clinical and laboratory evaluation on common non communicable diseases were already established. Moreover, as our healthcare workers have established excellent community engagement over the course of the cohort follow up, eliciting the responses for the study through telephonic interviews was easily achieved.

Conclusion

As the COVID-19 pandemic has been rapidly evolving, decisions for improving the clinical and public health responses rely on the sparse data from low and middle-income settings. Our findings provide insights into the perceptions and practices that are prevailing in a high NCD burden setting in rural India. We highlight the urgent need for comprehensive guidelines that address continuum of care for NCDs during the current and future disruptions to routine healthcare service delivery. Our findings imply the need for further research on understanding the determinants of the continuum of care in NCDs and particularly in the context of maintaining essential health services during public health emergencies such as pandemics. As the COVID-19 pandemic and its effects on health systems are likely to continue in the medium to long term, guidelines to address the key emerging areas such as adaptation of telehealth approaches within health systems to maintain continuum of care, digital health tools to facilitate patient's appointments including virtual follow up visits for those with NCDs coupled with regular engagement by frontline healthcare workers at the local levels would be critical. In addition, evidence informed public health messaging taking into consideration the social and behavioural aspects and prioritization by governments to ensure uninterrupted essential primary healthcare services would be key to preparing for future pandemics.

Acknowledgement

The authors thank all community members, especially the study participants, and the field workers for their contributions. This study is funded by Government of Andhra Pradesh under the Grand Challenges Project to address high burden of CKD.

References

[1] Ministry of Health and Family Welfare, Government of India. Advisory on Social Distancing; [last accessed 2020 June 17]. Available from: https://www.mohfw.gov.in/pdf/SocialDistancingAdvisorybyMOHFW.pdf

[2] John O, Gummidi B, Tewari A, Muliyil JP, Ghosh A, Sehgal M, Bassi A, Prinja S, Kumar V, Kalra OP, Kher V. Study to Test and Operationalize Preventive Approaches for CKD of Undetermined Etiology in Andhra Pradesh,

India. Kidney international reports. 2019 Oct 1; 4(10):1412-9.
[3] WHO. [last accessed 2020 June 17]. Available from: https://www.who.int/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases
[4] Fang L, Karakiulakis G, Roth M. Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection?. *The Lancet. Respiratory Medicine*. 2020 Apr; 8(4):e21.

Address for correspondence

Oommen John
George Institute for Global Health, UNSW, India
Manipal Academy of Higher Education, India
E-mail: susheel.john@gmail.com