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Child Friendly Preventive Oral Health Care Package to facilitate COVID-19 Lock-Down Social Distancing Strategy: Evidence from Sri Lanka

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ABSTRACT

The unprecedented spread of severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) popularly known as COVID-19 pandemic has become the most atrocious public health emergency across the globe. It has posed a devastating impact on health systems, economies and societies of all walks of lives attributed to highly contagious community spread scenario. Despite stringent containment endevours, community spread of COVID-19 infection seems heavily influenced by geographic and population specific social determinants. Dental Surgeons and supportive staff are one of the highest risk groups among health workers, working in contagious oral and respiratory secretions for contacting COVID-19 infections. Therefore, dental fraternity in many countries has streamlined services to emergency dental care. However, minimizing emergency visits to dental clinics by child patients with acute dento-alveolar infections and their parental care givers could be a viable strategy for facilitating COVID-19 lock down social distancing strategies and stay-home-stay-safe- approach of containing the community spread of the infection. In this backdrop, present short report aims to describe evidence from Sri Lanka on the potential contribution of preventive oral health care package tailored to high caries children in this regard. The package has resulted in cutting down emergency visits to dental care by high caries children thus rendering them low risk. On the other hand, those few who had acute exacerbations of dento-alveolar infections were provided with emergency dental combined with preventive oral health care a for lasting impact.

Key Words: COVID-19; Lock-down; Social Distancing; Preventive Oral Health Care Package; High Caries Risk Children

Introduction & Background

COVID-19 denotes much sinister than a usual public health emergency negatively impacting on health care systems, economies and societies across the globe [1]. This zoonotic infection attributed to novel corona virus belonging to the family of single stranded RNA viruses classified as Coronaviridae originated in the Wuhan region in China at the latter part of 2019 rapidly evolved to be an alarming public health crisis [2]. It is the 7th corona virus to cause human infections which are mild in general but the 3rd strain to frequently cause severe disease among humans [3]. The other two strains are the causative viruses for Middle East respiratory syndrome (MERS) and severe acute

respiratory syndrome (SARS) [3]. Despite global and geographic as well as country specific efforts to contain the spread of the infection the pandemic now has become endemic in large number of countries and regions with unprecedented community transmission. As reported by world meter corona virus update on 28th April 2020, the total global number of reported cases of COVID-19 was as high as 3, 065,066 with 211, 620 deaths there by painting the portrait of a gloomy picture of a devastating infection of high morbidity and mortality demonstrating an aggregated mortality rate as high as 6.9% [4] despite country specific variations in case-fatality rates. World Health Organization declared COVID-19 as a public health emergency of global concern on 30th January justified by its rapid spread and case-fatality rate of 3.4% [5]. The linear cumulative cases and case-fatality of COVID-19 is demonstrating a frustrating staggering upward trend since March 22nd 2020 to this date [4]. However, in the light of evidence of underreporting, limitations in case detection by laboratory testing in resource constrained settings, asymptomatic and pre-symptomatic stages and varying incubation periods requiring different quarantine periods[6], COVID-19 conceal the true picture of actual magnitude of the infection. There are many unanswered pertinent questions with regard to this novel devastating infection grappling both developed and developing countries crippling the health systems and economies. For example, it is not clear how neutralizing antibodies on virus clearance or disease progression of the virus among COVID-19 recovered patients which could provide useful information on passive antibody therapy and vaccine development [7]. Hence, containment of spread of COVID-19 has become the top priority of the era.

Health workers the frontiers of providing emergency, curative and preventive health care for COVID-19 patients and communities are at elevated risk of contacting the infection[8] if they do not meticulously adhere to risk minimization strategies such as using optimal Personal Protective Equipment (PPE)[8], optimal infection control procedures, triaging patients, practicing appropriate physical and social distancing mechanisms.

Research evidence reveals that following infection, SARS-CoV-2 becomes abundantly present in nasopharyngeal and salivary secretions of affected patients, predominantly giving rise to droplet transmission[9]. Hence, dental surgeons and supportive staff who are in close contact with oral cavity and related structures of individuals for prolonged periods involved in aerosol generating dental treatment are at high risk of acquiring the infection [9]. On the other hand, exacerbated by inherent characteristics of dental settings and treatment procedures the risk of cross-infection deemed to be high among dental practitioners and patients [10]. This became a major concern in dental clinics in regions and cities of high community transmission of COVID-19. Therefore dental professional bodies in many countries issued guidelines restricting patient care exclusively confined to emergency dental treatment such as dento-alveolar infections, fractured teeth with postponement and re-scheduling of routine dental treatment. For example, Centre for Disease Control (CDC) recommended dental facilities to postpone elective procedures, surgeries, and non-urgent dental visits, and prioritize urgent and emergency visits and procedures for several weeks [11]. This was aimed at mitigating COVID-19 transmission in dental care settings in the peak of COVID-19 outbreak in the backdrop of lock down of cities and regions for physical and social distancing. Moreover, as dental settings having unique characteristics that warrant additional infection control procedures all guidelines paid a special emphasis on this crucial aspect [12].

Early childhood dental caries (ECC) denotes one of the most common chronic childhood diseases [12] often goes untreated giving rise to late sequalae such as symptomatic pulp exposed teeth and frequent dento-alveolar infections [13]. Consequently, such conditions give rise to emergency visits to dental clinics. Less optimal oral hygiene practices, cariogenic dietary patterns and lack of availability and accessibility to preventive oral health care are the major determinants of dento-alveolar infections among children. Moreover, children from socially disadvantaged and culturally diverse backgrounds are at high risk for late sequalae of untreated ECC [14]. Hence, preventive oral health package tailored to individual needs and

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demands for such children could make them low risk thereby preventing and controlling emergency dental visits. This model has catered to high caries risk urban children in the Colombo Municipal Council area in Sri Lanka[14] identified as one of the high risk zones for COVID-19 community transmission in the country. In this backdrop, present short report explores the effectiveness of this package to mitigate emergency dental visits of toddlers and preschool children with dento-alveolar infections during the COVID-19 lock down period. Moreover, the services provided for children who made emergency visits are being outlined.

Method

The performance statistics of Preventive Oral Health Unit (POHU), National Dental Hospital (Teaching) Sri Lanka, the premier, multispecialty, tertiary care public dental hospital in the country was accessed for the period of lock down of Colombo District since 6th April 2020 to 27 the April 2020.. During the period, follow up over- the- phone calls were made to parental care givers of 20 randomly selected toddlers and preschool children using the contact mobile numbers of unit's data base. Moreover, statistics of children who made emergency visits for dento-alveolar infections during the period were perused.

Results and Discussion

As responded by the majority (95%) of parental caregivers the toddlers/children were symptomless not needing emergency dental visits. As perceived by parents, symptomatic deciduous carious teeth became asymptomatic due to intervention and follow-up visits offered by POHU comprised of preventive oral health care provision in a child-friendly dental setting, dietary counseling and brushing instructions for parents and for children, fluoride varnish and gel applications and simple glass-ionomer-cement restorations as well as pulp therapy received by referral to Restorative Units for pulp-exposed-symptomatic teeth. Parents were happy that this scenario let them to adhere to social distancing and stay-home-stay-safe approach fostered by health authorities and policy makers during COVID-19 lock-down. The overarching goal of the preventive oral health care package was to make high caries risk children low-caries risk which proved to have a beneficial impact. Parents reported that their children whom were much uncooperative for brushing teeth now willingly doing so while parents were more concerned on cutting down sugary snacks and providing healthy meals and snacks for their children. Furthermore, some children needed replacement of deficient fillings but parents considered they could wait for some time as they were asymptomatic. On the other hand, the children who made emergency visits for dento-alveolar infections were attended by appropriate cross-infection control procedures and efficient and effective use of PPE. All parental care givers and children were triaged with history taking and temperature checks at the main entrance to National Dental Hospital conducted by Nursing Officers supported by Health Assistants. While prescribing antibiotics and analgesics for children, the dietary and brushing advice highlighting the need fluoride toothpaste, night brushing and adherence to a healthy dietary pattern were emphasized. Moreover, fluoride gel applications, simple fillings and Fissure Sealant Applications were performed for selected children to augment further prevention of emergency dental visits due to acute exacerbations of dento-alveolar infections.

Conclusion:

In conclusion, tailored preventive oral health care package offered to high caries risk toddlers and children offered beneficial outcomes by preventing emergency dental visits in a high risk city for COVID-19 transmission in Sri Lanka. This facilitated social distancing underpinned by stay-safe-stay-home approach in lock down scenario aimed at mitigating community transmission of COVID-19 infection. Moreover, those who made emergency visits that could be attributed to sudden breakdown of routine preventive oral health care package underpinned by professional fluoride applications and low-risk-dental treatment were selectively provided with such care while attending to their emergency to control further dento-alveolar-infections and consequent emergency dental visits.

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