Comprehensive home based diabetic wounds care program during covid-19 pandemic in yogyakarta

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ABSTRACT

Patients with COVID-19 disease who have comorbidities are strongly correlated with increased disease severity and significantly increased risk of death. Diabetes Mellitus is one of important risk factor and contributes to the severity and mortality of patients with COVID-19. Patients with chronic wounds have delayed treatment during the COVID-19 pandemic. Therefore, management of patients with chronic wounds should be improved during this pandemic. Home based wound care and education program for the family caregiver is proposed to solve the problem. Eight participants were completed this program. Evaluation of wound for each patient were conducted (at the first meeting and four- or five-months follow-up) using the diabetic foot ulcer assessment scale (DFUAS). In general, the wound depth, wound size, infection, granulation, necrotic being better compared in the first assessment. Home-based care, and education for patients and family caregiver program have benefit for diabetic wound care management during Covid-19 pandemic in this area (Yogyakarta, Indonesia). The comprehensive with multidiscipline approach are recommended for future work.

KEYWORDS
Homecare program;
Diabetic wound;
Covid-19;
Offline-online;
Family care giver

1. Introduction

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by a novel coronavirus first detected in late 2019 and declared as global pandemic in 2020 by World Health Organization [1]. In Indonesia, from 3 January 2020 to date, there have been about 4 million confirmed cases of COVID-19 with 143,153 deaths reported [2]. COVID-19 symptoms are extremely heterogeneous, ranging from mild symptoms to severe hypoxia with acute respiratory distress and multi organ failure [3].

Patients with COVID-19 disease who have comorbidities are strongly correlated with increased disease severity and intensive care unit (ICU) admission [4-7]. Comorbidities were also associated with significantly increased risk of death [7]. Individuals with comorbidity were associated with up to 6 times higher risk of worse COVID-19 outcomes compared to those without comorbidities [4-7]. The most common comorbidities associated with poorer prognosis included diabetes, hypertension, heart disease and respiratory diseases [2, 4, 5, 7].

Diabetes Mellitus (DM) is one of important risk factor and contributes to the severity and mortality of patients with COVID-19 [8]. Indonesia is the world's fourth most populated country [9], and also the sixth highest number of DM patients in the world. Special Region of Yogyakarta is one of 34 provinces in Indonesia and ranks as the second highest national DM case after Jakarta (https://lokadata.id/artikel/infografik-hari-diabetes-sedunia-penderita-meningka).

One of the most commonly occurring complications of diabetes is Diabetic foot ulcer (DFU) [10], with a global prevalence of 6.4% [11]. Diabetic foot ulcers have substantial financial burden on health care systems related to the long treatment of infected wounds [12-14]. The prevalence of diabetic ulcer in

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Indonesia is reported about 15%, with an amputation rate [12] of 30%, mortality rate of 32%, and about 80% of diabetic ulcers require long-term care [15].

Studies reported patients with chronic wounds have delayed treatment during the COVID-19 pandemic [16, 17]. The COVID-19 pandemic impaired access to clinical management of chronic wounds resulting in high risk of infection and poor prognosis to the patients with chronic wounds [18]. Therefore, management of patients with chronic wounds should be improved during this pandemic.

Delivery of home-based wound care combined with telemedicine is promoted to reduce the risk of COVID-19 [19]. Telemedicine is a remote clinical service which have comparable quality with conventional standard of care in chronic wounds [20]. Although family caregiver role is essential in providing patients care [21], they facing challenges in managing the care. Research has shown that caregivers need more training and support in managing wound care [22]. Teaching wound care to family caregivers help guide family caregivers on how to perform wound care management or other nursing tasks [23]. Health care team play an important role in preparing family caregivers to perform wound care at home.

The homecare service unit at PKU Muhammadiyah Hospital was established in 2004. This unit provides standard wound care protocols for certain types of wounds including DFU with an average of 6-8 patients per month. Lack of use of support services by family caregivers in treatment is one of the main problems in this unit. There are no programs in the unit specifically designed to increase the involvement of family caregivers in treatment. Almost all of the patients and families we interviewed said that they could not perform wound care on their own.

The outbreak of COVID-19 also has a serious impact on the implementation of DFU services in this unit. Delays in wound care visits were reported due to fear of contracting COVID-19 infection, thereby increasing the risk of infection and wound complications. The COVID-19 pandemic also has a negative impact on family income, making it difficult to pay for expenses including health services. Contributions from this community service, namely home-based wound care and educational programs for family caregivers are proposed to solve the problem. Our team from the University of 'Aisyiyah Yogyakarta promotes and supports the involvement and empowerment of families in caring for patients with diabetic wounds. The team educates patients and caregivers until they feel confident in performing wound care alone.

2. Method

Home-based care, and education for patients and family caregiver program was conducted. This program was collaborated with Homecare service unit PKU Muhammadiyah Yogyakarta Hospital (Number: 1009/P1.24.2/III/2021) which supported by LLDIKTI's Wilayah V grand program 2021(Number: 1331/LL5/AM/2021). Homecare program especially for diabetic wound were conducted with offline and online education method for patients and family caregiver. Each participant (patients and family) was received team home visits (homecare nurse), assistance in the form of nursing care or medical devices, information related wound care management and practical education to performed a simple wound care. The diabetic foot ulcer assessment scale (DFUAS) was used for wound healing evaluation in this program. DFUAS is a valid tool for assessing diabetic wounds in Indonesia [24].

3. Results and Discussion

Ten participants were included in this program, however two patients among the participant were died because of comorbid diseases and Covid-19 suspect. Finally, eight patients were completed this program.

All patients with diabetic wounds problem. Three male patient, five female patients. Mean age 55.6-year-old. Six patients with foot ulcer diabetic, two of the participants with diabetic decubitus wound problem.

Telehealth services are also available to patients in this program, real-time consultation between the clinical team and the patient or family caregiver are shown Fig. 1. The patients and family received homecare treatment for wound care including private online follow-up (using what Shatt platform) by team; Homecare service unit PKU Muhammadiyah Yogyakarta Hospital (RB, SH), and Nurse wound care team from Universitas 'Aisyiyah Yogyakarta (WW, DP, FFT, BB) with protocol covid-19 procedure (Fig. 1 (a)). Twice a week homecare for each patient between April and September 2021 were applicated. We did assessment of wound, and did wound care following a specific case (Fig. 1 (b), and Fig. 1 (c)). We also discussed and informed to patient and family about the problem to empowered families care giver knowledge about wound care managements (Fig. 1 (d)). All treatment and equipment were used are free charge for patients and family.

(a) Team homecare

(b) Diabetic wound

(c) Family caregiver education

(d) Wound care and family caregiver education practice

Fig. 1. Sample of the homecare and patient-family caregiver education

Evaluation of wound for each patient were conducted (at the first meeting and four- or five-months follow-up) using the diabetic foot ulcer assessment scale (DFUAS). In general, the wound depth, wound size, infection, granulation, necrotic being better compared in the first assessment is shown in Fig. 2. The covid-19 outbreak negatively affects the delivery of care for patients with diabetic wound [25]. Study was confirmed that family-based interventions program are effective in improving glycemic control and wound healing [26]. Glycemic control as key for intrinsic diabetic wound healing [27] and telehealth positively impacted for patients and caregiver knowledge in diabetic management [28]. Another study informed in covid-19 pandemic, changes in practice to a telehealth-driven approach, with emphasis on homecare and community clinics to ensure best possible care to patients with diabetic wound in order to reduce complications and need for hospitalization [29]. Telehealth has positive contribution to healthcare during

the pandemic, and is being used in a variety of ways [30], However, another study was reported the limitations when it comes to treating wound patients [31].

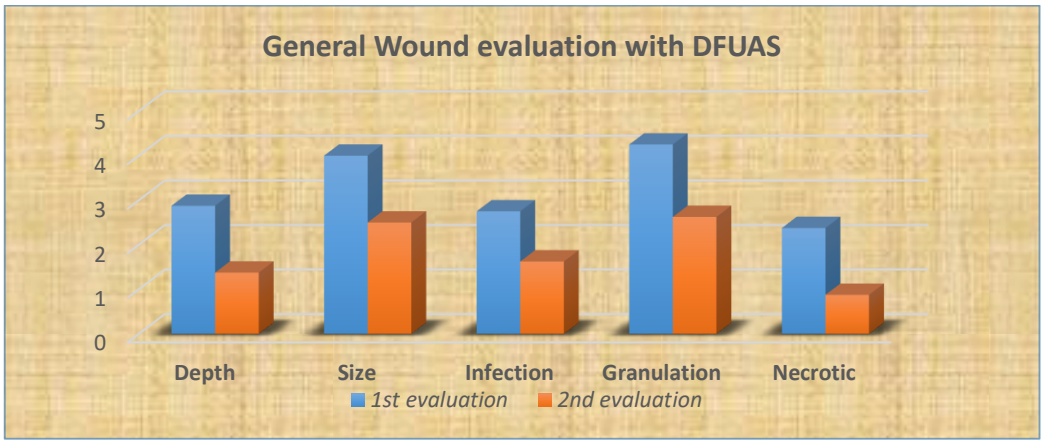

Fig. 2. General wound evaluation with diabetic foot ulcer assessment scale (DFUAS)

Patients and family care giver filling was evaluated by interview. All patients and family caregiver felt happy with this program; they have more information, intensive homecare professional care with free of charge. Such as the statements from Mr. S "This program very helpful for us, this very good social program especially for us, all team provide our needs along this program, information, medicine, skill practice, and also cost effectiveness, however, I am not very confident to do wound care to my family, because my felling" and Mrs J' "this helps us, because we don't need to going to hospital in this pandemic covid19 for care our family". Study was reported complex wounds is a significant high cost for wound care management [32, 33]. Specialist wound clinics care design are show cost-effective for the management of chronic wounds [34]. Management of the diabetic foot in the best way care improves survival, reduces diabetic foot complications, and is cost-effective [35]. In this social program, have benefit for based on the patient and family felt and experienced. Limitation; we have limitation in this program including nurse homecare who positive covid-19, ability of patients and family care giver to used virtual platform and internet connection in the telehealth process might influenced of the caring service.

4. Conclusion

Home-based care, and education for patients and family caregiver program have benefit for diabetic wound care management during Covid-19 pandemic in this area (Yogyakarta, Indonesia). Nursing homecare are implemented in this program, the comprehensive with multidiscipline approach are recommended for future work.

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Author Contribution

Home-based care, and education for patients and family caregiver program was conducted

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Conflict of Interest

The authors declare no conflict of interest.

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