นิพนธ์ต้นฉบับ

ประสิทธิผลของโปรแกรมการดูแลสุขภาพช่องปากผู้สูงอายุในหอผู้ป่วยระยะกลาง โรงพยาบาลส่งเสริมสุขภาพ ศูนย์อนามัยที่ 9 นครราชสีมา

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บทคัดย่อ

การศึกษาแบบนำร่องนี้มีวัตถุประสงค์เพื่อประเมินประสิทธิผลของโปรแกรมการดูแลสุขภาพช่องปากต่อสุขภาวะอนามัยช่องปากของผู้ป่วยสูงอายุที่เข้ารับการรักษาในหอผู้ป่วยโรงพยาบาลส่งเสริมสุขภาพ ศูนย์อนามัยที่ 9 โดยเปรียบเทียบสภาวะอนามัยช่องปาก ก่อนและหลังโปรแกรมดูแลสุขภาพช่องปาก ระหว่างเดือนกรกฎาคม พ.ศ. 2563 ถึงเดือนมกราคม พ.ศ. 2564 กลุ่มตัวอย่างเป็นผู้ป่วยเข้ารับการรักษาที่โรงพยาบาล อายุ 60 ปีขึ้นไป มี Barthel Activities of Daily Living (ADL) ต่ำกว่า 12 คะแนน มีจำนวน 25 คน ยินยอมเข้าร่วมในการศึกษา โปรแกรมการดูแลสุขภาพช่องปากประกอบด้วยแผนการดูแลเฉพาะบุคคลซึ่งประเมินโดยทันตแพทย์ การดูแลช่องปากประจำวันโดยพยาบาลหรือผู้ช่วยเหลือคนไข้ที่ผ่านการอบรมเรื่องการดูแลสุขภาพช่องปากสำหรับผู้ป่วยที่ต้องพึ่งพิง และให้บริการส่งเสริมป้องกันโดยทันตแพทย์สัปดาห์ละครั้งใช้เครื่องมือประเมินสภาวะสุขภาพช่องปากแบบง่าย (OHAT) เครื่องมือวัดดัชนีความสะอาดช่องปาก (OHI-S) แบบง่าย วิเคราะห์ข้อมูลใช้สถิติเชิงพรรณนา และทดสอบความแตกต่างโดยใช้ Wilcoxon signed rank test ที่ p-value <0.05 หลังจากการติดตามผลสองสัปดาห์ พบว่าคะแนน OHI-S และ OHAT ลดลงอย่างมีนัยสำคัญ ($p<0.05$) โปรแกรมการดูแลสุขภาพช่องปากในหอผู้ป่วยมีประสิทธิผลสามารถปรับปรุงสภาวะสุขภาพช่องปากและสุขอนามัยช่องปากของผู้ป่วยได้ ควรนำรูปแบบไปขยายผลด้วยการศึกษาในศูนย์หรือพื้นที่อื่นต่อไป

คำสำคัญ: อนามัยช่องปาก แผนการดูแลสุขภาพช่องปาก หอผู้ป่วย ผู้สูงอายุที่อยู่ในภาวะพึ่งพิง

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Original article

Effectiveness of oral care program for hospitalized older patients in the intermediate care ward, Health promoting hospital, Regional health promotion center 9 Nakhon Ratchasima

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Abstract

This pilot study aimed to assess the effectiveness of oral care programs in improving oral hygiene among hospitalized older patients in the intermediate care (IMC) ward from July 2020 to January 2021. A total of 25 hospitalized patients aged 60 years and older, with Barthel Activities of Daily Living (ADL) scores below 12. The patients received an individualized oral health care program that included daily oral care by nursing staff and professional oral care by dentists. Oral health status and oral hygiene were assessed using the Oral Health Assessment Tool (OHAT) and the Simplified Oral Hygiene Index (OHI-S) at baseline and after a two-week follow-up. Data were analyzed using descriptive statistics and Wilcoxon signed-rank test. After the two-week follow-up, there was a significant reduction in both OHI-S and OHAT scores ($p<0.05$). This oral health care program, which combined daily oral care by nurses, an individual oral care plan, dental prophylaxis, and prevention services by dentists significantly improved oral health and oral hygiene status among hospitalized older patients within two weeks. To further improve the oral hygiene and oral health status of inpatients, the oral health care program should be implemented in other health facilities.

Keywords: oral hygiene, oral care plan, intermediate care ward, dependent older people

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Background

In 2023 Thailand was a completed-aged society, with 19.7% of the population aged 60 and older[1]. The National Statistical Office Survey found that the proportion of elderly individuals in Thai population was rapidly increasing from 4.9% in 1990 to 7.4% in 2010, and 20.0% in 2023. This rise can be attributed to the aging baby boomer population, increased life expectancy at birth, and a decline in birth rate, which dropped from 16.4 (per 1,000 population) in 1994 to 11.8 (per 1,000 population)[2] in 2012. Nakhon Ratchasima, the largest city in Thailand, is also becoming an aging society, with the elderly population increasing continuously from 14.8% in 2015 to 18.8% in 2021[3]. Approximately 20% of this older population comprises dependent individuals, often referred to as bed-bound and home-bound. One-third of both elderly groups suffer from diseases such as stroke, brain injury, and spinal cord injury and receive rehabilitation treatment in the Intermediate Care Ward (IMC). These elderly patients are at risk of developing medical, physical, or cognitive problems and may require additional assistance with personal care, including oral hygiene care. Previous studies found that frailty is significantly associated with lower toothbrushing frequency and poor oral hygiene[4]. Hospitalized patients in the IMC wards have specific care needs that demand high standards of professional attention to prevent aspiration pneumonia. Research indicates that oral care interventions can effectively reduce the risk of aspiration pneumonia.[5] However, the lifesaving nature of care in the IMC wards often means that oral care is deprioritized. Nonetheless, the importance of adequate oral care for these patients has been emphasized in the literature, as it contributes to their oral comfort and quality of life.[6] Additionally, poor nutritional status can negatively impact oral health; oral pain or discomfort can deter patients from consuming food and liquids and hinder communication, particularly after extubation. Therefore, it is essential that patients in the IMC wards receive sufficient oral care to prevent oral problems and associated complications. Previous studies[7,8] have focused on oral care intervention provided by nurses, ward staff, caregivers, or dental hygiene specialists. In this study, we designed an oral health care program covering both oral care by nurses and professional oral care by dentists for individual older patients in the IMC wards. Moreover, there is limited research on oral care in hospitalized patients in Thailand. This pilot study aimed to assess the effectiveness of an oral health care program in improving oral hygiene among older patients in the IMC wards.

Methods

The study design was a pilot study. The target population was all older patients in the intermediate care ward at Regional Health Promotion Center 9 in Nakhon Ratchasima, who received services between July 2020 and January 2021. A total of 25 participants were included.

Inclusion criteria

Participants were hospitalized patients aged 60 years and older with a Barthel Activities of Daily Living (ADL)[9] score below 12, indicating dependence.

Exclusion criteria

Patients whose relatives or caretakers could not provide informed consent were excluded.

Discontinuation criteria

Patients who experienced discomfort or concern during the study period, or were discharged, or referred before completing the program were also discontinued.

The study obtained ethical approval from the ethical committee of Nakhon Ratchasima Health Provincial Office (Code No. NRPH2020-024) from May 29, 2020, to May 29, 2021. Participants who consented were enrolled in the program from July 2020 to January 2021.

Intervention

The intervention was defined as an individual oral care program tailored to each patient's oral status, physical, and cognitive abilities, designed by a geriatric dentist. Patients received routine oral care from nursing staff who had already participated in oral health care education sessions for dependent patients provided by a geriatric dentist. Routine daily oral care was provided following the individual oral care plan including tooth brushing with a soft toothbrush and 1,500 ppm fluoride toothpaste, interproximal teeth cleaning using interdental brushes, tongue cleaning with a soft toothbrush, mucosa cleaning using moisture gauze, and dry mouth care with GC-dry mouth, performed one to two times a day as needed. Professional Oral Care (POC) was delivered once a week by a geriatric dentist including mechanical teeth cleaning (scaling and polishing) using piezoelectric scalers and hand instruments, treatment of active carious teeth with silver diamine fluoride or glass ionomer fillings, application of fluoride varnish, and extraction of hopeless teeth under local anesthesia. Before discharge (14 days post-admission due to IMC system limitation), patients were re-assessed for oral status by a geriatric dentist, and a final individualized oral care plan along with recommendations was provided to patients and their caregivers. Oral care product sets were also distributed to encourage ongoing oral hygiene activities

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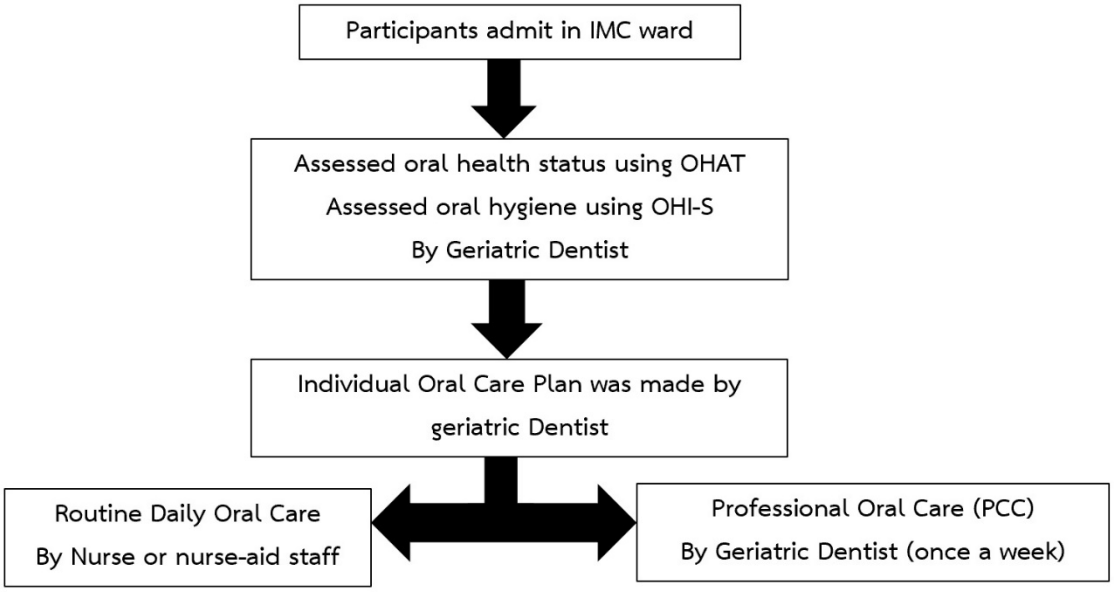

Figure 1 Diagram of oral care program

Data collection and instruments

Patients or their caregivers were interviewed to gather general demographic information. Oral health status was assessed using the Oral Health Assessment Tool (OHAT)[10] which measures oral health in residential care using a scale of 0 to 16 based on the presence or absence of oral health problems. The tool includes eight items: lips, tongue, gingiva, saliva, natural teeth, denture, oral cleanliness, and dental pain. Each item is scored as either 0 ("healthy), 1 ("changed"), or 2 ("unhealthy"), with higher score indicating poorer oral health. Additionally, dental plaque was examined using the Simplified Oral Hygiene Index (OHI-S)[11] which ranges from 0 to 3 points, with higher scores indicating poorer hygiene. Assessments were conducted by a dentist at baseline and during the two-week follow-up prior to discharging.

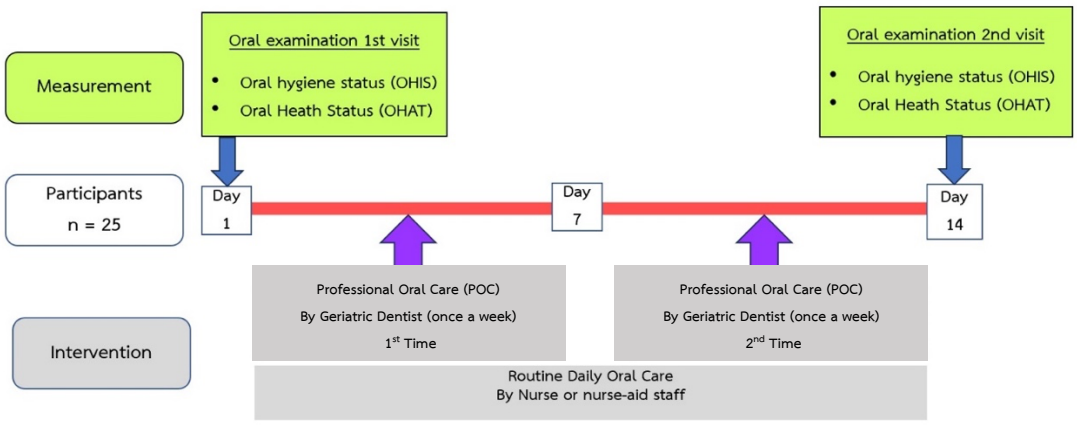

Figure 2 Outcome measurement and intervention diagram

Statistical Analysis

Data was analyzed using statistical software. Descriptive statistics including frequency distributions and percentages were used to describe general characteristics. Mean and standard deviations were used to describe patient oral hygiene indices. Wilcoxon signed-rank test were used to evaluate differences in patients' oral health and oral hygiene status pre- and post-participation in the program at baseline, and the two-week follow-up, with statistical significance at a p-value of less than 0.05.

Results

General Characteristics

The study included older patients in the IMC ward from July 2020 to January 2021. A total of 25 patients completed the study protocol, and their general characteristics are shown in Table 1.

Table 1 General Characteristics of samples

Variable	n = 25 (%)
Age	
Mean ± SD	68.5 ± 7.73
Min-Max	60 – 82
Gender	
Male	11 (44)
Female	14 (56)
Activities of Daily Living (ADL Score)	
0-4	15 (60)
5-11	10 (40)
>12	0
Having care giver (at home)	
Yes	20 (80)
No	5 (20)
Number of teeth in the mouth	
Mean ± SD	17.4 ± 8.93
Min-Max	3 - 29
Posterior occlusal pair	
Mean ± SD	3.4 ± 2.98
Min-Max	0 – 9

Oral Hygiene Status

Comparing oral hygiene status using the Simplified Oral Hygiene Index (OHI-S) between the first admission date and the final visit at the two-week follow-up revealed a significant decrease in the OHI-S score. The mean OHI-S score decreased from 2.4 ± 1.72 at baseline to 0.9 ± 1.07 at the two-week follow-up ($p<0.05$), as shown in Table 2.

Oral Health Status

Similarly, the oral health status measured by the Oral Health Assessment Tool (OHAT) demonstrated a statistically significant reduction from baseline to the final visit. The mean OHAT score at baseline was 4.6 ± 2.37, which decreased to 1.1 ± 1.24 after two weeks of follow-up ($p<0.05$), as indicated in Table 2.

Table 2 Comparison of oral hygiene and oral health status between baseline and two-week follow-up

Variable	Baseline (Mean ± SD)	Two-week follow-up (Mean ± SD)	*p*-value+
Oral hygiene status (OHI-S)	2.4 ± 1.72	0.9 ± 1.07	< 0.001*
Oral health status (OHAT)	4.6 ± 2.37	1.1 ± 1.24	< 0.001*

\+ *p*-value comparing between before and after outcomes within group using Wilcoxon signed-rank test

Discussion

The results of this study demonstrated that the oral health care program significantly improved oral health and hygiene status among hospitalized older patients in the intermediate care ward. After completing the program, the oral health status and hygiene scores, as measured by the OHAT and OHI-S, improved 76.0% and 59.0%, respectively. This indicates that while the improvement in oral cleanliness resulted in a modest reduction in OHI-S scores, it significantly reduced the incidence of oral disease, oral pain, and increased overall oral comfort, as evidenced by the dramatically decreasing OHAT scores. Previous research[12-16] supports this finding. Gibney JM., et al.[17] conducted a study on improving the oral health of older Australians in hospitals, where an oral care intervention was administered by nurses and oral health therapists over seven days. The results showed a transition from poor to improved oral cleanliness, as indicated by OHAT scores. Similarly, Schwindling et al.[18] performed a randomized controlled trial in Heidelberg, Germany, in 2018, providing oral health education to caregivers and utilizing ultrasonic

cleaning for prostheses to care-dependent institutionalized seniors over six months. They found a significant reduction in Plaque Control Record (PCR) in the experimental group, although no significant change was observed in Gingival Bleeding Index (GBI) and Community Periodontal Index of Treatment Needs (CPITN). Their finding suggests that combining routine daily care with professional oral health therapist intervention is beneficial. Recently, Wu et al. [18] implemented an oral intervention for care partners that included individual oral care plans, coaching sessions, and oral care educational booklets. After three months, improvements were noted in gingival index, plaque index, and overall oral health status. Nevertheless, this study has limitations, including a shortage of intervention period of 14 days due to financial system constraints within the hospital, as well as the absence of a control group, which was challenging due to the limited number of patients in the IMC ward.

Conclusion

The oral care program for hospitalized IMC patients, or dependent older patients, which combined daily oral care by nurses, individualized oral care plans, and professional oral care by dentists, effectively improved oral health and hygiene status within two weeks.

Suggestions for practical implementation

Dentists should consider implementing this oral care program in IMC wards within their facilities. General dentists should receive training to develop individualized oral care plans for dependent older individuals.

Suggestions for future study

We recommend extending the follow-up period to at least three months after patients are discharged from the hospital to their homes.

Suggestions for policy

Local healthcare organizations, such as the Provincial Administrative Office, should establish policies encouraging collaboration between dentists, dental hygienists, and interdisciplinary healthcare workers at the sub-district level.

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