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Effects of Skin Care Self-Management in Lung Cancer Patients With Skin Toxicity During Targeted Therapy

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Purpose: Patients with advanced non-small cell lung cancer receive targeted therapy. Nearly 100% of those receiving EGFR-tyrosine kinase inhibitor will be experiencing skin toxicities. These skin reactions cannot be avoided but can be controlled. Skin care self-management is a continuous and dynamic process. In this process, patients must actively take the responsibility of disease self-care, change self-care behaviors and care skin in daily life. Developing skin care self-management is critical in alleviating severity of skin toxicity and avoiding dose-reduce or discontinued of EGFR-tyrosine kinase inhibitor. The purpose is to explore the effect of skin care self-management on severity of skin toxicity, anxiety, depression, social function, skin care self-efficacy and quality of life for patients with advanced non-small cell lung cancer who suffered from skin toxicity during targeted therapy.

Methods: This pilot study is a two-group pretest-posttest longitudinal study. Data were collected at pre-targeted therapy, 1 and 3 months after the targeted therapy prospectively. Convenience sampling was used to recruit patients from thoracic and oncology ward / outpatient department of a medical center in northern Taiwan. Eighty-five patients were randomly assigned with 40 patients in the experimental group and 45 patients in the control group from Nov 2017 to July 2018. The control group received routine care of targeted therapy. The experimental group received a skin care self-management program besides routine care of targeted therapy. The skin care self-management program for this study, that aimed to improve the patients' ability of skin care, is developed based on Self-Efficacy Theory and Causal Model of Behavior Change.

Results: There were no differences between groups in demographic data, treatment-related characteristics, skin care self-efficacy, and status of anxiety and depression at pretest. The score of depression was significantly lower in the experimental group than it was in the control group at one month ($p < .05$) after pretest. The score of skin care self-efficacy was significantly higher in the experimental group than it was in the control group at one month ($p < .001$) and three months ($p < .001$) after pretest. The score of skin care self-efficacy was significantly higher in the experimental group than it was in the control group at one month ($p < .001$) and three months ($p < .001$) after pretest. The status of social function was significantly better in the experimental group than it was in the control group at one month ($p < .05$) and three months ($p < .05$) after pretest. After the intervention, significant improvements were found in the experimental group in quality of life ($p < .05$). There were no differences between groups in severity of skin toxicity and avoiding dose-reduce or discontinued of EGFR-tyrosine kinase inhibitor after pretest.

Conclusion: Early identification of skin toxicity during targeted therapy is useful to conceptualize the impact of skin toxicity on a health trajectory, as this provides a comprehensive means to link a patient's past, present, and projected future health condition and places the patient's health within a specific context.

The skin care self-management program is developed based on Self-Efficacy Theory and Causal Model of Behavior Change, the contents include knowledge about target therapy, skin cleansing (scalp, face, body), skin hydration and photo protection, fingers and toes protection, oral care, diarrhea managing, relaxation technique, breathing control methods and maintaining a healthy lifestyle. We suggest

healthcare professionals to apply this program to advanced non-small cell lung cancer patients with skin toxicity during targeted therapy.

Most of our participants lived with their families (92.5% in experimental group and 95.6% in control group). The family kinship system in Taiwan is different from that of Western families. Families play a key role in motivating patients to attend healthcare programs. A patient-centred program of disease self-management should not only be focused on patients' health problems and psychological distress, but also on educating family members about the benefits of self-management.

Title:

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Keywords:

self-management, skin toxicity and targeted therapy

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Abstract Summary:

We expect the findings of this study will draw attendees' attention on the skin care self-management of patients with non-small cell lung cancer who suffered from skin toxicity during targeted therapy, as well as helping healthcare professionals understand the importance of educating family members and discussing the benefits of self-management.

Content Outline:

1. **Introduction**
2. Burden of skin toxicity during targeted therapy
3. Benefits of skin care self-management
4. Goals of skin care self-management
5. Purpose of this study
6. **Methods**
7. Study design: quasi-experimental design
8. Participants: patients with advanced non-small cell lung cancer receive targeted therapy.
9. Sampling: convenience sampling
10. Place of recruitment: thoracic and oncology ward / outpatient department from a medical center
11. Measurement:
12. Demographic data and treatment-related characteristics: self-developed scale and Eastern Cooperative Oncology Group performance status (ECOG PS)
13. Skin toxicity severity: skin toxicity severity grading from the National Institute of Health Common Terminology Criteria for Adverse Events (NCI-CTCAE Version 4.03, 2010)
14. Anxiety and depression state: Hospital Anxiety and Depression Scale (HADs)
15. Social function: Social Function scale from The Nottingham Health Profile
16. Skin care self-efficacy: self-developed scale
17. Quality of life: Global Health Status/Quality of Life scale from The European Organization for Research and Treatment of Cancer (EORTC QLQ-C30)

III. Results

1. Distribution of socio-demographic characteristics from 85 participants: 40 patients in the experimental group and 45 patients in the control group

2. There were no differences between groups in demographic data, treatment-related characteristics, skin care self-efficacy and status of anxiety and depression at pretest.
3. The score of depression was significantly lower in the experimental group than it was in the control group at one month after pretest. The score of skin care self-efficacy was significantly higher in the experimental group than it was in the control group at one month and three months after pretest. The status of social function and quality of life was significantly better in the experimental group than it was in the control group at one month and three months after pretest.
4. There were no difference between groups in severity of skin toxicity and avoiding dose-reduce or discontinued of EGFR-tyrosine kinase inhibitor after pretest.
5. **Conclusions**
6. During the treatment period, skin assessment and individually tailored management should be regularly provided.
7. We suggest that the healthcare professionals apply this skin care self-management program based on Self-Efficacy Theory and Causal Model of Behavior Change to patients with advanced non-small cell lung cancer who suffered from skin toxicity during targeted therapy.
8. Skin care self-management program should not only be focused on patients' health status and psychological problems, but also on the motivation of family members who are involved in the program.

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