UNIVERSITI TEKNOLOGI MARA (UiTM)

THE EFFECTIVENESS OF A COMBINED PREBIOTIC AND POSTBIOTIC MOISTURISER (CPPM) THERAPY IN IMPROVING MASKNE

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Abstract

Introduction

Personal protective equipment (PPE) has become the new social norm as part of COVID-19 protection since the SARS-CoV-2 pandemic, but it has had an impact on the skin barrier, particularly the face. Maskne refers to acne eruptions around the facemask area. The combination of friction, repeated pressure, sweat, or stress on the skin from wearing the mask results in acne or exacerbates pre-existing acne. This study aimed to analyse the effectiveness of a combined prebiotic and postbiotic moisturiser (CPPM) therapy in improving maskne.

Methods

This was a double-blind randomised control trial with systematic random sampling 1:1 to receive either CPPM or Standard moisturisers. From December 2022 to May 2023, patients diagnosed with maskne at Hospital Al-Sultan Abdullah (HASA) UiTM Dermatology Clinic were studied. Subjects were assessed at baseline, week 2 and 4 after application of moisturisers using modified Global Acne Grading System (mGAGS) and Cardiff Acne Disability Index (CADI) score.

Results

A total of 150 patients completed the study. Using the mGAGS score, compared to baseline, the mean score reduction was statistically significant at week 4 [5.33 (±4.06) vs 1.13 (±4.33); $p< 0.001$] in the CPPM arm compared to the Standard arm. In terms of CADI score, compared to baseline, there was also significant reduction of mean score at week 4 [2.23 (±2.53) vs 0.55 (±2.59); $p< 0.001$] in the CPPM arm compared to the Standard arm.

Conclusion

This study found that using CPPM therapy improved maskne significantly.

Keywords: maskne, CPPM, mGAGS, CADI

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Dissertation Title

The effectiveness of a combined prebiotic and postbiotic moisturiser (CPPM) therapy in improving maskne.

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Main Text

Introduction

Coronavirus disease 2019 (COVID-19) is a disease caused by the novel coronavirus SARS-CoV-2, which initially spread in Wuhan, China. COVID-19 was declared a global pandemic by the World Health Organization (WHO) in 2020 and ended in May 2023. The SARS-CoV-2 infectiousness has become a public health concern, with over 7 million deaths recorded globally.[1] When compliance is high, public mask-wearing is most effective at reducing virus spread.[2,3]

Face mask is a protective headgear that covers part of the face, mainly the nose, mouth and cheek, also known as the 'O' area. Face masks are widely used by public to reduce airborne infection during the recent pandemic Covid-19 outbreak. It can be made of medical mask (2ply, 3ply, N95), cotton, silk or any other materials.[4] Wearing a mask may cause pathophysiological changes such as elevated skin temperatures and sebum production on the chin, cheeks, and peri-oral region. Previous study found a significant difference in skin-to-skin temperature, redness, and hydration after wearing a mask compared to the non-mask-wearing area, which was more noticeable at the peri-oral site.[5] In another study, duration of face mask wearing of more than 4 hours/day and the reuse of face masks increased the risk of adverse skin reactions compared to changing the mask daily.[6] This confirms that wearing a face mask produces both mechanical and chemical harm to the skin.

Maskne is the term created to describe acne caused by mask-skin friction. It is a form of acne mechanica and a subtype of acne vulgaris. Many patients complained of the occurrence of new acne or worsening acne after using face mask.[7,8] Understanding of underlying pathophysiology directly relates to the novel skin microenvironment and textile-skin friction created by mask-wearing, distinct from nontextile-related acne mechanica previously linked to wearing of headgear. Mask causes humidity inside the skin face, which is an excellent breeding ground for bacteria, increasing problems with infection, hence inflammation on the skin and causing acne. The mask also caused friction on acne and triggered fraction-induced acne.

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit. It is divided into two categories: non-inflammatory (closed and opened comedones) and inflammatory (papules, pustules, cystic, nodules). Its pathophysiology includes hyperseborrhea, abnormal