



ABSTRAK

Latar Belakang: Vitamin D telah lama dikenal memiliki peran terhadap metabolisme kalsium dan fosfor serta pemeliharaan tulang. Peran vitamin D juga penting dalam fisiologis kulit seperti pada proses diferensiasi dan proliferasi epidermis, fungsi sawar kulit, apoptosis keratinosit, dan sistem imun kulit. Hidrasi kulit merupakan indikator penting untuk pemeliharaan fungsi sawar kulit yang tepat baik dalam bidang kosmetik maupun penyakit kulit patologis. Uji klinis yang dilakukan pada ras Kaukasia dan Afrika di Amerika Serikat menunjukkan bahwa pelembab dengan vitamin D mampu memperbaiki hidrasi kulit secara signifikan. Mengingat bahwa hidrasi kulit juga dapat dipengaruhi oleh jenis kulit, ras, kelembaban, iklim, dan paparan cahaya matahari, maka perlu dilakukan penelitian mengenai efek vitamin D pada ras Asia, dengan tipe kulit Fitzpatrick IV-V di lingkungan dengan iklim tropis yang ada di Indonesia.

Tujuan: Mengetahui efek losion vitamin D pada kelembaban kulit yang diukur menggunakan tingkat hidrasi kulit (*skin hydration*)

Material dan Metoda: Desain penelitian ini adalah uji klinik acak tersamar ganda berpembandingan bahan pembawa (*double blind randomized vehicle controlled trial*). Subjek merupakan laki-laki sehat berusia 20-40 tahun. Randomisasi dilakukan dengan menggunakan komputer untuk membagi subjek ke dalam kelompok perlakuan dan kelompok kontrol. Kelompok perlakuan mendapatkan losion dengan vitamin D, sedangkan kelompok kontrol mendapatkan losion pembandingan (losion berisi bahan pelembab kulit). Peneliti dan subjek penelitian tidak mengetahui jenis obat yang diberikan hingga akhir penelitian. Kelembaban kulit diukur dengan melihat nilai penguapan air melalui tingkat hidrasi kulit dengan *skin corneometer*, dilakukan dua kali, yakni sebelum memulai menggunakan losion dan 2 minggu setelah menggunakan losion. Penelitian dilakukan di Departemen Dermatologi dan Venereologi Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan. Penelitian dilakukan selama bulan April 2019 hingga Juli 2019. Analisis statistik dilakukan untuk mengetahui perbandingan hidrasi kulit (korneometri) sesudah pemberian losion pada kelompok perlakuan dan kelompok kontrol.

Hasil: Rata-rata hidrasi sebelum pemberian losion pembandingan 36,1162 IU dan sesudah pemberian losion pembandingan 30,5956 IU ($p=0,035$). Rata-rata hidrasi sebelum pemberian losion vitamin D 39,175 IU dan sesudah pemberian losion vitamin D 30,6518 IU ($p=0,002$). Tidak terdapat perbedaan rata-rata hidrasi kulit antara kelompok pembandingan dan vitamin D ($p=0,374$).

Kesimpulan: Dari 16 subjek yang diteliti pemberian losion vitamin D menyebabkan penurunan hidrasi kulit dan pemberian losion pembandingan tidak meningkatkan hidrasi kulit subjek secara signifikan. Tidak terdapat perbedaan rata-rata hidrasi kulit antara kelompok losion pembandingan dan losion vitamin D yang diberikan selama 2 minggu.

Kata kunci: vitamin D topikal, kelembaban kulit, sawar kulit



ABSTRACT

Background: Vitamin D has been known for its roles for calcium and phosphor metabolism as well as bone maintenance. Other roles of vitamin D are also essential for skin physiology such as epidermal proliferation and differentiation, skin barrier function, apoptosis of keratinocyte, including skin's immune system. Skin hydration is an important indicator for the maintenance of skin barrier in appearance or pathologic conditions. Clinical trials conducted on Caucasians and Africans in United States of America shows that moisturizers with vitamin D are able to increase skin hydration significantly. Skin hydration can also be affected from various conditions such as skin type, race, humidity, climate, and sunlight exposure, it is required to conduct an experiment regarding vitamin D effects on Asians, with Fitzpatrick IV-V skin types in tropical climate environment, which can be achieved in Indonesia.

Objective: Monitoring vitamin D's effect on skin humidity which is measured using skin hydration.

Method: This study is based on double blind randomized vehicle controlled trial. Subjects include healthy male ranging from 20-40 years old. Randomization was conducted in computer to divide subjects into treatment and control groups. Treatment groups were given lotions with vitamin D, while control groups were given comparative lotions (lotions with skin moisturizers). Investigator and subjects were not informed with the kind of lotions given until the end of the study. Skin humidity was measured through skin evaporation indicating skin hydration, which is measured using skin corneometer twice, before applying the lotion and 2 weeks after applying the lotions. This study was conducted in Dermatology and Venerology Department in Faculty of Medicine, Nursing, and Public Health in Universitas Gadjah Mada, from April 2019 to July 2019. Statistical analysis are used to compare skin hydration after applying the lotions in treatment and control groups.

Result: Average mean of skin hydration before application of comparative lotion was 36,1162 IU and after lotion application was 30,5956 IU ($p=0,035$). Average mean of skin hydration before application of treatment lotion was 39,175 IU and after lotion application was 30,6518 IU ($p=0,002$). There was no difference in average mean of skin hydration between comparative and treatment groups ($p=0,374$).

Conclusion: Application of treatment lotions for 16 subjects showed decrease in skin hydration and application of comparative lotions did not increase skin hydration significantly. There was no difference in skin hydration mean between comparative and treatment groups which was given for 2 weeks.

Keywords: topical vitamin D, skin humidity, skin barrier