Comparing the effect of tacrolimus (0.1%) ointment and betamethasone valerate (0.1%) cream on the epidermal barrier: a twice-weekly maintenance dose

John Chittock, Kirsty Brown, Michael J. Cork1 and Simon G. Danby

1The Academic Unit of Dermatology Research, Department of Infection and Immunity, The University of Sheffield Medical School, Sheffield, UK; The Paediatric Dermatology Clinic, Sheffield Children’s Hospital, Sheffield, UK.

* Corresponding author: s.danby@sheffield.ac.uk

Abstract ID: 2984524

INTRODUCTION

Atopic dermatitis (AD) is a multifactorial disease arising from a primary epidermal barrier defect, immunological dysregulation and negative environmental insults.1 AD is considered a lifelong condition, the natural progression of which alternates between periods of active disease and remission.2 The AD remission phase is characterised by a subclinical epidermal barrier defect accompanied by the presence of subclinical inflammation.3,4 The proactive use of topical anti-inflammatory therapy is an effective method of addressing the subclinical inflammation associated with the remission phase of atopic dermatitis. Both topical corticosteroids (TCS) and topical calcineurin inhibitors (TCI) can have comparable efficacy when used in this manner,5,6 although to date, the interaction of a proactive treatment dose with the subclinical epidermal barrier defect in AD is yet to be determined. Here a novel study design was employed using subjects with quiescent AD that are flare-free, allowing the interaction of the treatments with the subclinical epidermal barrier defect to be determined independently from their anti-inflammatory properties.

AIM

1) To perform a randomised, observer-blind functional anti-inflammatory properties.

2) To perform a randomised, observer-blind functional interaction of the treatments with the subclinical epidermal barrier safety for the proactive management of AD.

SUBJECTS AND MATERIALS

23 volunteers with a self-reported, recent history of AD (no symptoms in the last 6 months) were recruited. Basic exclusion criteria included pregnancy, breastfeeding and being under the age of 18. Informed consent was obtained prior to participation. Volunteers applied 2FTU (finger-tip units) of betamethasone valerate (0.1%) cream (BMVc) to one forearm and 2FTU of tacrolimus (0.1%) ointment (TACo) to the opposing forearm twice-per-week for 8 weeks. 17 volunteers successfully completed the study.

RESULTS

The AD remission study was funded by Astellas Pharma Europe Ltd who manufacture TACo, pimecrolimus and BMVc.

CONCLUSIONS

A FMS using subjects with quiescent AD is a novel tool for assessing the direct action of topical anti-inflammatory therapy on the defective epidermal barrier.

The proactive use of BMVc of 8 weeks raised skin-surface pH with concomitant loss of SC cohesion.

By significantly improving SC hydration and integrity, lowering caseinolytic / trypsin-like protease activity and preserving multiple components of epidermal barrier function, TACo treatment strategies may be a non-cutaneous barrier safety for the proactive management of AD.

Treatment regimens focusing on epidermal barrier repair could reduce AD severity and in the long-term be disease modifying.1

REFERENCES

2 Margolis JS et al. (2014) JAMA Dermatol; 150(9): 953-600.

For enquiries, further information, or a PDF copy of this poster please scan below.

ACKNOWLEDGEMENTS: We thank Les Hunter for volunteer recruitment

FUNDING: This study was funded by Astellas Pharma Europe Ltd who manufacture TACo.

CONFLICTS OF INTEREST: Professor Cork and Dr Danby have held sponsored grants from Astellas, Novartis and Stiefel-GSK who manufacture TACo, pimecrolimus and BMVc.

FURTHER INFORMATION: Alternatively please visit our research website: https://www.sheffield.ac.uk/infectionandimmunity/dermatology