

Co-morbidities in Inflammatory Dermatological Diseases

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An industrial PhD thesis representing a collaboration between The Danish Agency of Science, Technology and Innovation, Department of Dermatology at Roskilde Hospital, and LEO Pharma A/S was defended November 7th, 2014 at Roskilde Hospital. Supervisors: Gregor Jemec, Prof., DMSc, Department of Dermatology, Roskilde Hospital, Claus Bay, MSc Stat, LEO Pharma A/S, Kim Mark Knudsen, Ph.D, Senior Biostatistician, LEO Pharma A/S, Christina Ellervik, Associate Professor, Chief Physician, PhD, Department of Clinical Medicine, University of Copenhagen, Denmark, Lars Erik Bryld, MD, PhD, Department of Dermatology, Roskilde Hospital. Opponents: Tonny Karlsmark, MD, PhD, Clinical Associate Professor. Department of Clinical Medicine, University of Copenhagen, Ole Ahlehoff, MD, PhD, Department of Cardiology, Roskilde Hospital, Peter van der Kerkhof, Professor, Department of Dermatology, RUNMC Radboud University Nijmegen Medical Centre, Holland.

The main objective of this thesis was to investigate if there is an association between inflammatory dermatological diseases, i.e. psoriasis and hidradenitis suppurativa, respectively, and cardiovascular diseases and risk factors with a specific focus on the metabolic cardiovascular risk factors, i.e. the metabolic syndrome.

Two meta-analyses in addition to two cross-sectional studies included in this thesis found evidence of a statistically significant positive association between psoriasis and the metabolic syndrome as well as a statistically significant positive association between hidradenitis suppurativa and the metabolic syndrome.

The association was found to be strongest for psoriasis and hidradenitis patients recruited from in/outpatient clinics in hospitals (vs. the general population), maybe indicating that having psoriasis or hidradenitis in a severe degree holds a greater risk of the metabolic syndrome compared to a milder degree of these dermatological diseases. This pattern could also represent further selection bias suggesting that the duration or subtype of psoriasis or hidradenitis influence the burden of the metabolic syndrome. As this thesis was based on observational studies it cannot suggest that the associations are of a causal nature. Obesity and inflammation, however, appeared to partly explain the associations.

When comparing the burden of metabolic syndrome between psoriasis and hidradenitis, the latter demonstrated the greatest burden of comorbidity.

The clinical implications based on the evidence in this thesis are as follows: As a minimum it is recommended to screen hidradenitis and psoriasis patients attending in/outpatient



Fig. 1. Iben Marie Miller defended her thesis on “Co-morbidities in inflammatory dermatological diseases – Psoriasis, Hidradenitis Suppurativa, and Cardiovascular Risk Factors” on November 7, 2014.

clinics for the metabolic syndrome. Furthermore, it is recommended to screen hidradenitis patients for the metabolic syndrome in the primary sector, i.e. the general population. With regard to psoriasis patients in the general population, it may be relevant to screen for the metabolic syndrome, but at the same time awareness is warranted not to unnecessarily stigmatize these patients.

Future longitudinal studies are needed to explore the temporal relationship between hidradenitis and the metabolic syndrome. Longitudinal studies have been conducted with regard to psoriasis, however, methods could be optimized to reduce misclassification and selection bias. Further exploration of the role of severity, subtypes and duration of the skin diseases, the pathophysiological mechanisms behind the alleged associations, and the possible effect of pharmacotherapy on the metabolic syndrome in psoriasis/hidradenitis is needed.