

Dermato-Venereological Research at Umeå University

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Although Umeå University had to wait until 1965 for its inauguration, there has been a dental school in Umeå since 1956 and a medical school since 1958.

A brief description of some of our ongoing research projects is given below:

Proteases and skin barrier function

In the 1980s we discovered a set of previously unknown proteases in the stratum corneum. Since then we have been involved in characterizing these enzymes and their inhibitors in order to understand the role of proteolytic processes in the homeostasis of normal stratum corneum and in skin pathophysiology. New discoveries in recent years have shown a strong correlation between dysfunctional protease regulation and serious skin diseases. Our theory is that pharmacological modulation of skin proteases may offer new tools for dermatological therapy.

Sexually transmitted infections and "risk factors"

Since 1997, with the exception of 2009–10, despite all efforts, the prevalence of *Chlamydia trachomatis* (CT) infections has increased steadily in many European countries, including Sweden. Our evaluation of contact tracing, for at least 12 months back in time, shows good results. The "Västerbotten model" for contact tracing has functioned as a model for changing contact tracing in Sweden. In order to further identify risk factors among patients attending a clinic for sexually transmitted infections (STIs) to enable individualized care depending on risk. Identifying risk factors using a standardized questionnaire makes it possible to find persons at increased risk for *C. trachomatis* (re)infection. We conclude that preventive work should focus not only on prevention of STIs, but also on the high frequency of anxiety and hazardous alcohol consumption. We are evaluating motivational interviewing (MI) as a method for reducing STI risk in a randomized controlled study. Our preliminary results indicate that MI is effective in significantly reducing risk for catching STIs, especially *Chlamydia*.

Indoor environments and health: a competence centre

Health problems caused by poor indoor environments are very common, but there is still a lack of knowledge about the relationships between buildings, air quality and health. The Centre for Indoor Environment and Health, KOMIN

(www.kominmiljo.eu), is a cooperation between Umeå University (with the Department of Dermatology and Venereology as coordinator) and partners in Vaasa, Finland. The project is financed by Bothnia-Atlantica; one of the European Union's regional programmes. The purpose of KOMIN is to build a continuously growing network of specialists in the field of indoor environment and health and to provide a competence centre that is available to the industry and the public. The overall aim is to support continuous efforts to improve indoor environments with regard to their potentially negative effects on health. Ongoing research projects within KOMIN include studies on air chemistry, the way the brain processes smell sensations, and rehabilitation of patients with so-called sick building syndrome.



Prof Torbjörn Egelrud, Head of the Department of Dermato-Venereology.

Cutaneous leishmaniasis and quality of life

Cutaneous leishmaniasis (CL, oriental bubo) is a relatively common disease in Iran and neighbouring countries. CL causes mutilating ulcers in the skin, which are stigmatizing for patients. The disease is caused by a parasite transmitted by sand-flies. The purpose of this project is to develop a disease-specific instrument to measure quality of life of individuals with CL. The work is carried out entirely in Iran, with supervision from the University of Umeå. The various papers include two qualitative studies involving interviews with patients and focus group sessions to develop the instrument and two quantitative studies to validate and test the instrument. The PhD student involved with this project is Alireza Khatami, in Tehran.

The Swedish Registry for Systemic Psoriasis Treatment: PsoReg

The selection of the best and safest medicine for individual psoriasis patients requires substantial knowledge. A web-based registry, such as PsoReg, is a tool to improve this knowledge by systematic analyses of the experiences of all participating physicians. PsoReg was established in 2007 as the first national quality-registry in Swedish dermatovenereology. Because PsoReg is designed and managed by dermatologists, the entire process of creating, analysing and

finally applying the collective knowledge to the individual patient is carried out within the profession and, by design, sheltered from commercial influences. PsoReg provides a systematic, but real-life, picture of the diseased population and is dedicated to enhancing patient safety by long-term evaluation of effectiveness and safety profiles of non-biological versus biological psoriasis treatments. The broad collective experience of PsoReg with the large number of wide-spectrum patients might even allow the identification of both target phenotypes for different treatments and safety concerns in patient subpopulations. Furthermore, we can analyse the impact on the quality of life and cost-effectiveness across different treatments.

Identification of new approaches to early diagnosis of malignant melanoma: a matter of life or death

Mortality in malignant melanoma increases with delayed diagnosis. Patients usually detect melanoma themselves, but there is often a long delay before they seek medical advice. Existing screening activities are suboptimal. In order to optimize preventive measures we need to know more about the affected individuals and what might have influenced their decision eventually to seek medical advice. In order to extend the planning and implementation of a targeted preventive intervention, we are studying how women and men with malignant melanoma decide to seek care. By identifying the “right” patients, speed up their decision-making and refine screening programmes, our project aims to obtain decreased mortality and suffering of patients, as well as a cost reduction.

Psoriasis and comorbidity in children

Psoriasis is a common disease with a prevalence (incidence) of approximately 2–3% in Sweden. The disease affects adults to a greater extent than children. In a study conducted in the UK a prevalence of 0.55% was shown in children <10 years. The clinical impression is that childhood-onset psoriasis is associated with a worse prognosis than adult-onset. However, there is very little research on childhood psoriasis, and co-morbidities have not been studied previously. Psoriasis is linked to increased risk of cardiovascular disease and metabolic syndrome; knowledge that has been gained in recent years. The metabolic syndrome includes obesity, lipid disorders and insulin resistance. Thus far there have been few studies investigating whether factors associated with, or prognostic for, metabolic syndrome are present in patients with psoriasis before onset of the skin disease or if they occurred later in life. It is possible that the chronic inflammation, mediated by factors such as tumour necrosis factor (TNF)- α , in psoriasis may contribute to its comorbidities. The aim of our studies on childhood psoriasis is to further our knowledge on this subject.

Other projects

- Keratoderma palmoplantar hereditaria type Bothnia: can the disease be treated with erythromycin?
- Patient characterization in families with autosomal dominant hypohidrotic ectodermal dysplasia, a rare inherited disorder with symptoms affecting the teeth, sweat glands, skin and hair.

Umeå University Hospital

White arrow indicates the location of the Department of Dermato-Venereology.



Facts

The Umeå University was founded 1965. The first professor of Dermatology and Venereology was Einar Hollström (1909–79), who was appointed in 1959, the same year as the first medical students received their training in Dermatology and Venereology in Umeå.

Today, the university has approximately 35,000 students. Among these there are approximately 2,000 scientists and teachers. In the Medical Faculty there are 1,100 employees, 3,500 undergraduate students and approximately 600 PhD students. Dermatology and Venereology is a division of the Department of Public Health and Clinical Medicine.

The group of researchers at the Department of Dermatology and Venereology comprises:

- 2 Professors
- 1 Assistant Professor
- 4 PhD researchers
- 8 registered PhD students

Since 2005 the group has published approximately 25 scientific papers.

During the last 5 years 6 doctoral thesis have been produced.