**Role of chronic infections on the course of diabetes mellitus type II: Effects on the cardiovascular risk profile**

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**Current state of research:**

Life style factors such as obesity, physical inactivity and a genetic predisposition are important risk factors for the development of type II diabetes (1). In addition, chronic infections are well known as determinants for the manifestation of type II diabetes. Patients with diabetes mellitus suffer a enormous risk for subsequent arteriosclerotic diseases (2). Changes regarding systemic inflammatory markers seem to play a key role with respect to these developments. However, the role of various infectious markers as a stimulus for the development for arteriosclerosis in this context are rather unclear (3) and currently not investigated in detail in patients with diabetes. Infection with *Helicobacter pylori* (*H pylori*) causes signs of a chronic atrophic gastritis with infiltration of inflammatory cells into the gastric mucosa and with systemic measurable effects on the immune response and subsequent cytokine and chemokine response (IL-12 and IFN-γ) (4). In addition, the cytomegalovirus is also a very common infectious agent with systemic measurable effects on immune response. If once acquired, the cytomegalovirus can be reactivated lifelong under certain circumstances (5). Together with *Chlamydia pneumoniae* (CP) both infectious agents are suggested as potential stimuli for arterogenesis (3).

Most recently, evidence has been delivered that chronic infection with *H pylori* may cause an atherogenic modification of blood lipids (6). How this suggested pathomechanism may determine the risk for subsequent cardiovascular diseases in patients with type II diabetes however, is unknown yet. Therefore, we intend to investigate the effects and the effect modification of *H pylori* infection, the CP and CMV infections (sero-status) on the cardiovascular risk profile and associated markers (e.g., CRP, lipids, Il-6) and on the late manifestation of cardiovascular diseases (e.g. coronary heart disease, myocardial infarction, stroke) in patients with diabetes mellitus type II.

**Aim of the project:**

We intend to investigate the association between chronic infections such as *Helicobacter pylori*, of cytomegalovirus infection, and *Chlamydia pneumoniae* (CP) infection (sero-status) and the cardiovascular risk profile in patients with diabetes mellitus type II. Parameters used as risk and course parameters of cardiovascular diseases will be determined with respect to the occurrence of so called „chronic infectious disease markers“ (*H pylori*, CMV-und CP-serostatus) and put in comparison to patients with diabetes type II but without these infectious markers. Firstly, the analyses will be conducted in a cross-sectional study design (this dissertation project). In the subsequent follow-up part of the study we will verify the identified factors in a second approach.

**Study plan:**

This project will be realized in the context of the ESTHER I – study (for details please see the description of the ESTHER-I study).

After the recruitment phase in the ESTHER-study we expect about 1500 patients with prevalent diabetes mellitus type II. We expect about 400 patients with newly diagnosed type II diabetes after 3 years follow-up and 800 patients after 6 years of follow-up.
Further funding:

The basic funding for ESTHER is currently provided with means from the Department of Epidemiology, German Centre for Research on Ageing.

Preliminary title of the doctoral thesis:

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References: