**Abstract**

**Midway evaluation of PhD project, November 6th. 2014**

Knut Anders Mosevoll, MD, PhD student.

**SYSTEMIC CYTOKINE PROFILES IN CLINICAL PRACTICE - DAGNOSTIC AND PROGNOSTIC CONTRIBUTIONS**

The inflammatory response is a key concept in understanding a whole range of medical conditions. Inflammation is a broad response that might be both local and systemic, and is characterized of a complex interplay between immune cells and different tissue cells. The response is mediated by a range of mediators and our aim has been to study the inflammatory response as a network, not only single mediators. We have chosen patient cohorts with different inflammatory conditions; (i) procedure related response in stem cell and platelet harvesting, (ii) deep venous thrombosis (DVT) and (iii) sepsis in immunocompromised and immunocompetent. We have completed the first two projects, while the last project is still running.

Our first study demonstrates that patients with myeloma have an altered cytokine network during stem cell mobilization, and the network is further altered during stem cell harvesting by leukapheresis. These treatment- or procedure-induced alterations involve several mediators known to affect myeloma cell proliferation, migration and survival. Analyses of chemokine profiles in pre-apheresis plasma and graft supernatants suggested that such profiling can be used to detect relevant prognostic differences between patients.

Serum levels of several inflammatory mediators (i.e. interleukins, chemokines, soluble adhesion molecules, proteases) are increased in DVT patients compared with healthy controls; this is consistent with a DVT-induced inflammatory response reflected in these serum levels. However, there is a considerable overlap in serum levels for DVT patients and other patients admitted to hospital with suspected DVT, and for this reason analysis of single mediators or mediator profiles seems to have a limited value in the differential diagnostic evaluation of patients with suspected DVT. However, the combined use of endothelial biomarkers, C-reactive protein and D-dimer could be used to identify patient subsets with different frequencies of venous thrombosis. Thus, analysis of plasma biomarker profiles including endothelial cell markers may be helpful in the initial evaluation of patients with deep vein thrombosis.