ImmunoTools *special* Award 2013

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Remote Ischemic Conditioning in Renal Transplantation – Effect on the early immune response after transplantation.

About 25% of renal transplantations from deceased donors are complicated by delayed graft function (DGF). DGF increases the risk of rejection and shortens graft survival, thus implying heavy costs both to the affected individuals and on society.

Dendritic cells (DC's) are important regulators of the immunologic balance between tolerance and immunity and are attracted to ischemic tissue.

DGF is caused by ischemia and reperfusion of the renal tissue. Remote ischemic conditioning (rIC) is a technique where repetitive, short term ischemia is induced in one tissue, e.g. an arm or a leg, leading to systemic protection against ischemia elsewhere in the body. Clinical studies have shown, that rIC following acute myocardial infarction and before revascularisation, reduces the myocardial damage. We have used rIC in a porcine kidney transplantation model involving brain dead donors and showed that rIC improved renal graft perfusion and glomerular filtration rate (GFR) but unfortunately we were unable to show a decrease in circulating DC's, which was probably due to 1) short detection period and 2) lack of specific markers on porcine DC's.

The purpose of the CONTEXT study is to establish whether rIC can improve immediate and long term kidney graft function after transplantation from deceased donors. My focus in this study is to investigate the effect of rIC on the early immune response. Suggesting that the ischemic insult from rIC attracts DC's my hypothesis is that the rIC procedure decreases the number of circulating DC's and thereby blunts the early immunologic response to the kidney graft.

The CONTEXT study is an investigator initiated, randomised, controlled study planned to include approx. 200 patients receiving a kidney graft from deceased donors at Sahlgrenska University Hospital, Göteborg or Aarhus University Hospital, Skejby. By randomisation the patients will receive rIC or non-rIC in a 1:1 ratio. When paired kidneys from the same donor are available randomisation will ensure that one recipient will receive rIC and the other recipient sham.

rIC is performed on the opposite thigh of graft placement. An inflatable tourniquet delivers four cycles of 5 min ischemia. Each cycle is separated by 5 min of free blood flow. rIC is delivered during surgery and under anaesthesia before the graft is reperfused. The procedure itself involves minimal risk to the patient. A similar tourniquet is commonly used providing bloodless field in orthopaedic surgery. In addition a number of other studies have used similar techniques of rIC without any complications.

Blood samples are drawn at baseline, day 1, 3, and 5, and at 1 and 3 months. Using a lineage cocktail of CD3, CD14, CD19 and CD56 T-cells, monocytes, B-cells and macrophages are not present in the final analyse, where ILT3, HLA-DR, CD123, CD11c, and CD86 are used to characterise maturation state of the $CD123^{high}$ $CD11c^{low}$ plasmacytoide DC and $CD123^{low}$ $CD11c^{high}$ myeloid DC.

My Intended use of ImmunoTools antibodies: As shortly mentioned above I have worked one year with quantification and classification of dendritic cells in pigs by flow cytometry and still I have ongoing projects involving pigs, and therefore I constantly need a large variety of antibodies for a quick analysis. Also, the flow cytometry protocol in CONTEXT is functioning well, so I want to include detection of mesenchymal stem cells using CD14, CD45, HLA-DR, CD73, CD90, and CD105. Furthermore I can use CD3, CD19, CD56, CD11c, and CD86 to detect dendritic cells.

ImmunoTools *special* AWARD for **Kristian Ravlo** includes 30 reagents

FITC - conjugated anti-human CD1a, CD3, CD4, CD11a, CD11b, CD19, CD20, CD21, CD45, CD80, CD86, CD105, HLA-ABC, HLA-DP, HLA-DR,

PE - conjugated anti-human CD3, CD4, CD11c, CD19, CD20, CD21, CD34, CD45, CD80, CD105,

APC -conjugated anti-human CD4, CD11c, CD14, CD19, CD21,

DETAILS