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Using Dynamic Contrast enhanced CT (DCE-CT) to assess the response to treatment of chemotherapy of colorectal cancer liver metastases

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Aim:

To determine whether DCE-CT can allow an early evaluation of the effects of chemotherapy combined with antiangiogenetic treatment on liver metastases in patients with advanced colorectal cancer.

Materials and Methods:

Image analysis was performed at a dedicated workstation encompassing measurement of the arterial and portal tissue perfusion (AF, PF) and Perfusion Index (PI = AF/(AF+PF)%) of the metastases. The perfusion values were calculated using dual input, maximum slope model. The poster reveals preliminary data from four patients, being the first of a planned larger study including 40 patients. The patients underwent three examinations, which were performed at pre-treatment baseline, 14 days after the start of the treatment, and together with the normal routine CT examination (app. 9 weeks after treatment onset).
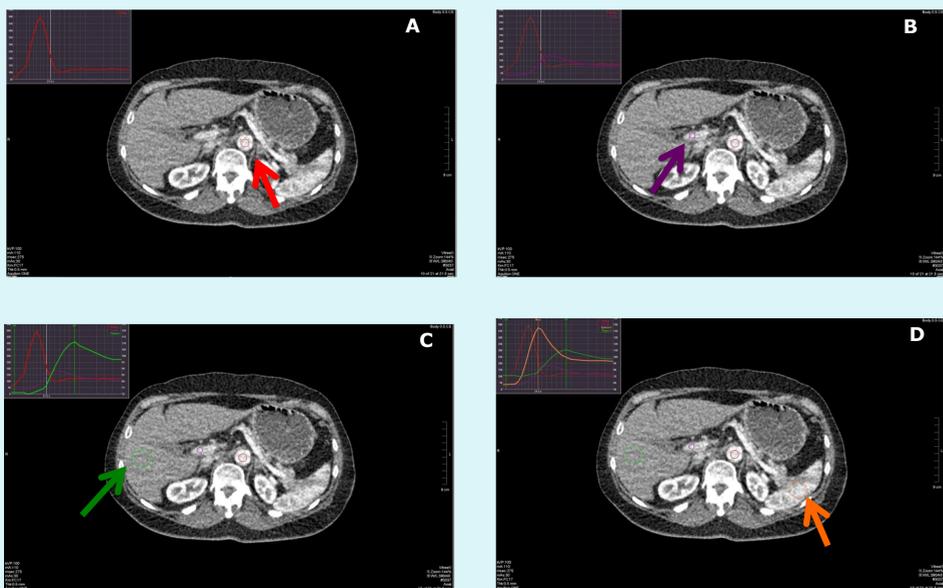

Figure 1: Shows the analyzing method. **A**: ROI in the abdominal aorta. **B**: ROI in the hepatic portal vein. **C**: ROI in the right lobe of the liver. **D**: ROI in the spleen.
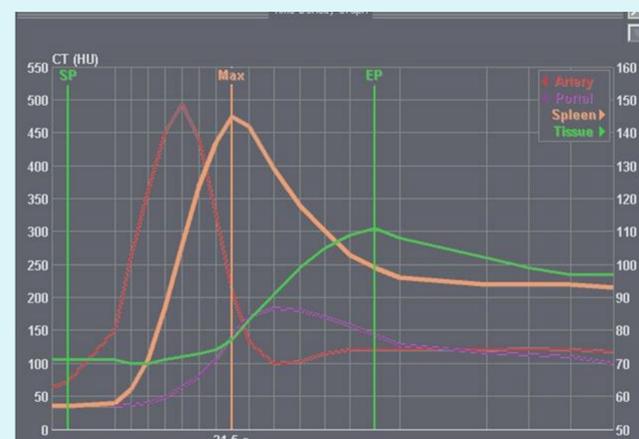

Figure 2: Shows the analysing curves.

Results:

So far we have analysed DCE-CT data of four patients. One patient showed a mean decrease of 30% (perfusion index (PI)) between the first and second examination. This patient was a partial responder. The other three patients showed similar PI values for the first and second examination. One of these patients was a partial responder and two had stable disease according to the RECIST criteria.
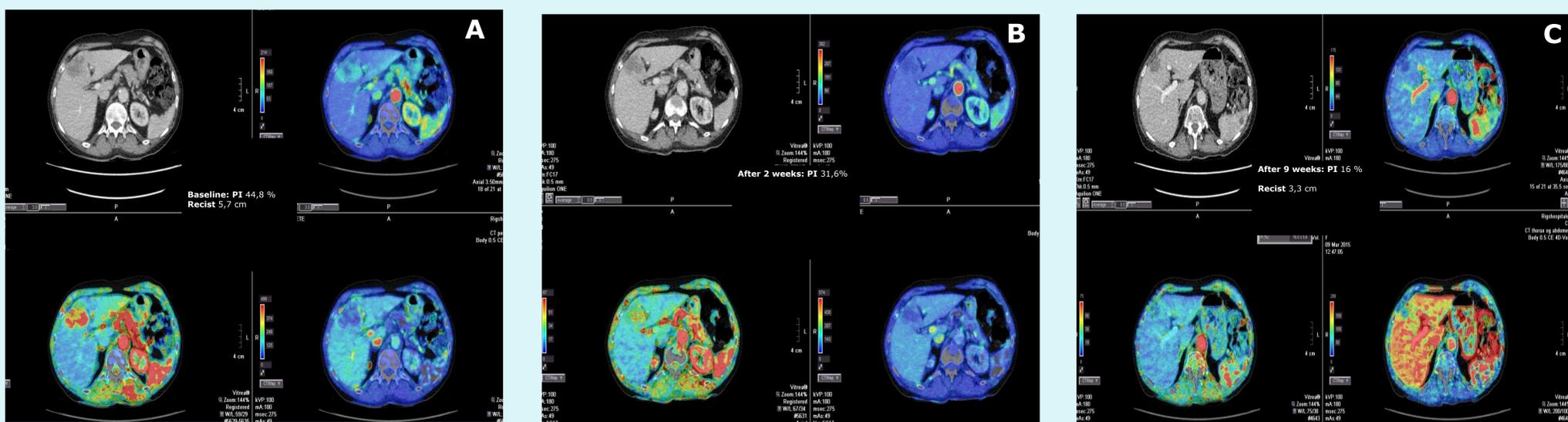

Figure 3: Shows the perfusion values. **A**: Baseline. **B**: After 2 weeks. **C**: After 9 weeks.

Conclusion:

The study is work in progress. We expect that the study will clarify the added value for DCE-CT in treatment monitoring of metastatic colorectal cancer.