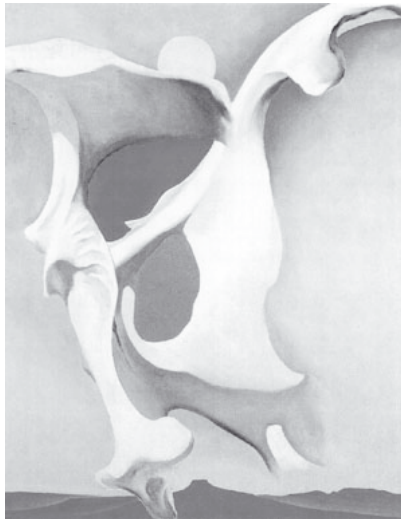


Chapter Two

Aim of Thesis



AIM OF THESIS

Sacroiliac screw fixation is one of various options for the treatment of unstable pelvic ring fractures. Overall we investigated three major aspects of this technique: the optimal technique for sacroiliac screw fixation, the reliability of peroperative fluoroscopy and the late results. We focused on the questions whether sacroiliac screw fixation can be achieved safely by fluoroscopy, whether it is stable (for possible direct postoperative weight bearing) and if it improves the quality of life after pelvic ring fracture (or after nonunion of this injury).

In *chapter three* the long term outcome of patients treated with internal fixation after unstable pelvic ring fracture is presented. We compared the long term results of internal fixation in patients with unstable pelvic ring fracture to the general population. And we examined whether patients treated with combined posterior and anterior fixation had better outcome compared to other patients. From the results of this chapter several other questions arose that formed the basis of the research presented in this thesis.

In *chapter four* we investigated the results of combined anterior plate fixation and posterior sacroiliac screw fixation for nonunion after pelvic ring fracture. The question was whether the quality of life of these patients could be improved by fixation of the pelvic ring. The second goal was to investigate their quality of life after surgery compared to patients who are primarily operated.

In *chapter five to seven* the results of our investigation into the biomechanics of sacroiliac screw fixation for Tile B and Tile C fractures are given. As described earlier in the introduction, several authors report that sacroiliac screw fixation is one of the most stable fixations and has the additional benefit of being a less invasive technique. However, several aspects of this fixation required further research. In *chapter five* we reviewed whether, from a biomechanical point of view, there is an optimal combination of sacroiliac screws (one screw, two parallel screws or two converging screws). In *chapter six* we studied whether a sacroiliac screw supplied additional stability in open book fractures. In *chapter seven* we investigated whether sacroiliac fixation can maintain the reduction after completely unstable Tile C fractures during cyclic loading.

In *chapter eight and nine* the safety of sacroiliac screw positioning using fluoroscopy is examined. Several authors report malpositioning of the screws, sometimes leading to serious neurological complications requiring re-operation. In *chapter eight* we reviewed the positioning and outcome after sacroiliac screw positioning using inlet and outlet fluoroscopy, in order to examine how peroperative fluoroscopy correlated with postoperative C.T. scan and clinical results. Whether the lateral view has an additional role in safe peroperative positioning, is examined in *chapter nine*. Finally, further recommendations for the development and implementation of future techniques are described.