Guest editorial

Postoperative delirium—a challenge for the orthopedic team

In this issue of *Acta* (pages 378–389) there is an excellent paper which presents the "state of the art" regarding prevention and treatment of delirium (Bitsch et al. 2004). This comprehensive review will help to disseminate the presently available knowledge about delirium and thereby improve the care of the elderly orthopedic patient.

Delirium is a common neuropsychiatric syndrome characterized by disturbances in attention and consciousness. It develops over a short period of time, with the symptoms tending to fluctuate during the course of one day. Delirium is by definition a direct physiological consequence of a general medical condition and is probably the most commonly presenting symptom of disease in old age. Delirium can occur in both hyperactive and hypoactive forms. The hyperactive form is easy to detect due to the usually disruptive behavior of the patient, but the hypoactive form can often only be detected by cognitive testing of the patient. In both types of delirium there is often a combination of several predisposing and precipitating factors for delirium (Diagnostic and Statistical Manual of Mental Disorders 1994, O'Keeffe 1999, Cole 2004). This is especially true for old frail hip-fracture patients. Delirium is independently associated with prolonged hospitalization and increased mortality.

Delirium is a common cause of falls, resulting in fractures in old age—and a large proportion of old patients arriving at the emergency department are already delirious on admission. About one third of older patients with hip fractures are usually delirious even before surgery and another third usually develop delirium postoperatively. The longer the waiting time for an operation, the greater the risk that patients will develop delirium. It is also necessary to differentiate between dementia and delirium, and to regard delirium in a patient with an underlying dementia disorder as a symptom of an underlying complication that he/she should be assessed and treated for.

Delirium is not an unavoidable complication in an elderly hip-fracture patient, nor even in patients with dementia. Several intervention studies during the past few years have clearly shown that delirium can be prevented and treated (Williams et al. 1985, Gustafson et al. 1991, Cole et al. 1994, Inouye et al. 1999a, Lundström et al. 1999, Marcantonio et al. 2001, Milisen et al. 2001). Intervention programs that have been successful are multifactorial and interdisciplinary, and have included assessment and treatment of underlying causes as well as prevention and treatment of factors endangering the cerebral metabolism. Cerebral hypoxemia especially, caused by e.g. sleep-apnoea syndrome, anemia, hypotension, pulmonary diseases, and heart failure, can often easily be prevented and treated. Stress mediated through hypercortisolism is also regarded as an important pathophysiological mechanism resulting in delirium (Flacker and Lipsitz 1999). When the patient who developed delirium after his/her hip-fracture surgery returns for a planned hip-replacement operation, despite it being a bigger operation, he/she will be less likely to develop delirium. The patient is mentally better prepared and those admitted for a planned operation have no acute complicating disease which is often the cause of the fall and the resulting fracture in the old hip-fracture patients. Unfortunately, the acute complicating diseases in hip-fracture patients are difficult to detect due to the delirium.

The combination of poor oxygen saturation, anemia, perioperative falls in blood pressure, polypharmacy and stress will inevitably result in delirium and sometimes in permanent brain damage.

Apart from these complications, the elderly hip-fracture patient also often suffers from other complications such as urinary tract infections, pneumonia, constipation and urinary retention. All of these complications can easily be prevented and treated. It is not what type of operation or analgesia that is the most important issue, but rather how the care and treatment is carried out.

Intervention studies have shown that the incidence of postoperative delirium can be reduced by 50%, that the duration of delirium can be shortened by half, and that the length of the hospital stay will thereby be substantially reduced. The incidence of new falls and injuries in the orthopedic department will also be reduced (Gustafson et al. 1991). It is also likely that the proportion of patients who dislocate their operated hip will be reduced if delirium is prevented. The economic savings will be substantial but, even more importantly, the suffering of the patients will be reduced.

Excellent nursing care seems to be a prerequisite for successful prevention and treatment of delirium while acceptable scientific evidence for pharmacological treatment is still lacking.

Nursing care includes e.g. detection and treatment of malnutrition, prevention and treatment of constipation and urinary problems, and reorientation of the disorientated delirious patient in a calm surrounding (Williams et al. 1985, Lundström et al. 1999, Milisen et al. 2001). Pharmacological treatment is nevertheless sometimes necessary but should always be used with caution. If sedation is acceptable, clomethiazol is the drug of choice but if the delirium is complicated by frightening hallucinations and agitation, haloperidol or risperidone can be used—but only in low doses and for short periods. Cholinesterase-inhibitors are probably a better choice but randomized treatment studies involving these drugs are still lacking (American Psychiatric Association 1999, Meagher 2001).

A frail old person arriving at the orthopedic department with a hip-fracture should be regarded as the greatest challenge to the orthopedic team. The incidence and duration of delirium in the orthopaedic department should be regarded as an important quality indicator of the care (Inouye et al. 1999b). Successful prevention and treatment of delirium involves all aspects of the treatment of the frail elderly patient, including the care at the scene of the accident, in the ambulance, in the emergency department, and during the operation—but also treatment during the postoperative period, including all aspects of nursing care and long-term rehabilitation.

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