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Education/new procedure

Postoperative delirium in elderly patients after regional anaesthesia

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Normal aging includes changes in cognitive function. Pre-existing age-associated cognitive decline (learning, memory loss, and/or impairment,) may be, mostly transient, engraved postoperatively. Although the stress response produced by surgery appears to play an important role, the pathophysiology remains unclear and there is no widely accepted animal model that can simulate it occurrence.

Cognitive disturbances are common in the elderly after major operations factors, but are rarely seen after minor surgery *(1)*. Although probably triggered by the same, not clearly understood mechanisms and, despite strongly overlapping symptoms, postoperative cognitive impairment should be clinically distinguished from postoperative delirium.

The latter is defined as a confusional state with acute onset and fluctuating course. It is characterised by inattention, disorganised thinking, hallucinations and alteration in consciousness. The hyperactive form (agitation) is more often in the middle age group whereas the hypoactive, lethargic form is predominately seen in the elderly. Delirium or acute confusional state is increasingly recognised as a major event occurring postoperatively in the elderly. Mis-diagnosed or unrecognised it may jeopardize postoperative care and hide serious complications with potentially devastating consequences *(2)*.

This type of delirium, commonly seen after surgery has been frequently termed »interval delirium«. Usually, it occurs between the second and seventh postoperative day *(2)* with an overall occurrence rate of 9–26% *(4, 5),* reaching 50 % in elderly patients undergoing major orthopaedic surgery *(3, 6)*.

The aetiology of perioperative delirium remains obscure and is multifactorial. Numerous perioperative complications can trigger postoperative delirium and more than 50 potential causes are suggested *(7)*. Most common contributing factors include metabolic disorders, infection (sepsis), hypotension and hypoxemia, polypharmacy, drug withdrawal, preoperative dementia and pain. Furthermore, evidence support the role of reduced cholinergic transmission, or extensive dopaminergic tone in delirium. Drugs are one of the most common causes and one most easily to treat.

Perioperative factors involved in postoperative confusional state and relevant to anaesthesia include duration of anaesthesia, postoperative infection, respiratory complications *(5),* and anaemia and transfusion requirements *(4)*.

Undertreated pain has been identified as a significant contributor to the development of postoperative delirium *(6–9)* and therefore, postop-

erative analgesia may have a crucial role in its prevention. However, the choice of surgical anaesthesia seems to be a less relevant factor in the pathogenesis of postoperative cognitive disturbances and acute confusional states as well. Earlier studies have shown lower incidence with regional techniques compared with general anaesthesia *(10–16)*. Slightly reduced mortality at one month as well as a trend to lower incidence of postoperative confusion was also found by Cochrane reviews comparing regional and general anaesthesia in elderly patients for hip and femoral fracture surgery as well *(17, 18)*.

Other trials could show the superiority of neither regional nor general anaesthesia regarding the incidence of postoperative cognitive disturbances *(18, 19)*. More recently; multi-factorial program (pre-hospital and perioperative) for patients undergoing hip fracture surgery has been found to reduce the incidence of perioperative delirium *(20)*. Spinal anaesthesia was a part of the program and recommended as a first choice in elderly scheduled for surgery for hip fracture. Despite of all draw-backs of this study *(21)* the impact of such strategies represents the important step in treatment, research and future directions for preventing postoperative delirium in elderly patients *(22)*.

CONCLUSION

Irrespective of the study results that the choice of intraoperative anaesthesia (regional vs general) may not influence the incidence of early postoperative cognitive disturbances (interval delirium), there is sufficient data that the effective pain treatment may reduce it. Therefore, effective analgesia should become the primary goal in the postoperative management of the elderly. Moreover, recent data suggest that assessment and early intervention can predict and avoid postoperative delirium. The link between the perioperative period and postoperative delirium in the elderly represents an important area for further research.

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