

POSTOPERATIVE DELIRIUM

Review Article

POSTOPERATİF DELİRİYUM

Neslihan Uztüre

Department of Anesthesiology and Reanimation,
Yeditepe University School of Medicine,
İstanbul, Turkey

Özgül Keskin

Department of Anesthesiology and Reanimation,
Yeditepe University School of Medicine,
İstanbul, Turkey

Sevgi Bilgen

Department of Anesthesiology and Reanimation,
Yeditepe University School of Medicine,
İstanbul, Turkey

Hatice Türe

Department of Anesthesiology and Reanimation,
Yeditepe University School of Medicine,
İstanbul, Turkey

Özge Köner

Department of Anesthesiology and Reanimation,
Yeditepe University School of Medicine,
İstanbul, Turkey

Corresponding Author;

Neslihan Uztüre
Yeditepe University Hospital
Devlet Yolu, Ankara cad,
No: 102-104, Kozyatağı/Kadıköy,
İstanbul, Turkey
Tel: 0216 5784000
E-Mail: nuzture@gmail.com

ABSTRACT

Delirium is an acute confusional state characterized by an alteration of

consciousness with reduced ability to focus, sustain, or shift attention. It is a frequent complication after surgery.

Effective measures to prevent delirium include avoiding where ever possible, those factors known to cause or aggravate delirium, Because of the high prevalence, higher intensive care unit (ICU) costs and poor outcomes associated with delirium, all older patients should be screened on admission for existing delirium regardless of the setting .

Key words: Postoperative delirium, risk factors, preventing postoperative delirium

ÖZET

Odaklanmakta, dikkati devam ettirmekte ve farklı bir yöne çevirmekte zorlanma ile birliktelik gösteren deliryum, bilinçte dalgalanmalar ile karakterize konfüzyonel bir durumdur.

Deliryumu engellemek için alınacak önlemler deliryuma sebep olan ve agreve eden faktörlerden kaçınmayı içermektedir.

Yüksek prevelans, yüksek yoğun bakım maliyeti ve olumsuz seyir nedeniyle yaşlı hastaların kabulü sırasında mevcut deliryum için dikkatlice değerlendirimleri gereklidir.

Anahtar kelimeler: Postoperatif deliryum, risk faktörleri, operasyon sonrası deliryumun önlenmesi.

Delirium is an acute change in cognition that is characterized by poor attention and illogical thinking(1,2). Among the many types of delirium, postoperative delirium is a common and

well-known complication of especially elderly patients after anesthesia (3). It is important to distinguish post-operative delirium from similar clinical entities such as emergence delirium, postoperative cognitive dysfunction and dementia (4). Emergence delirium is an acute reaction characterized by inappropriate motor behavior, disorientation and emotional lability. It can be seen transiently during or immediately after recovery from anesthesia (5). Postoperative cognitive dysfunction is defined by the International Society of Postoperative Cognitive Dysfunction as 'an impairment of one of several cognitive domains such as attention, memory, sensorimotor speed and cognitive flexibility' (6). This condition typically develops over weeks to months, and the diagnosis requires sensitive presurgical and postsurgical neuropsychiatric testing (6). Delirium is a serious disturbance in a person's mental abilities that results in a decreased awareness of one's environment and confused thinking. The onset of delirium is usually sudden, often within hours or a few days. Input from a family member or caregiver may be important for a doctor to make an accurate diagnosis.

Delirium is defined as a "disturbance in attention and orientation to the environment that develops in a short period without other neurocognitive disorder" and as a "change in an additional cognitive domain" (7). Although there are variations in the duration and the degree of delirium, postoperative delirium usually develops between 24 to 72 hours, and it can persist for several hours or days.

Etiology Of Postoperative Delirium

Minimal changes in mental function after surgery occur in patients of all ages, but more frequent they are observed in elderly patients. Postoperative delirium can be related to adverse results, including functional dysfunction, increased health care costs,

longer intensive care unit (ICU) and hospital stay and postoperative mortality (8-10). The pathophysiology of delirium in the ICU is not well understood although many preexisting risk factors have been identified, including advanced age (>65 years old), alcohol use, hypoxemia, infections, chronic medical conditions, preexisting neurocognitive impairment, sensory impairment; hearing and vision impairment, dehydration, polypharmacy, orthopedic (esp femoral neck fracture repair), ophthalmologic or cardiac surgeries, presence of a urinary catheter or endotracheal tube, longer length of stay in ICU and poorly controlled postoperative pain (11-14). Sleep disorder in the ICU has been also proposed as a potential risk factor (15).

Pathophysiology Of Postoperative Delirium

The pathophysiology of delirium is poorly understood and the precise mechanisms may be multifactorial. It can be considered as a nonspecific manifestation of a widespread reduction in cerebral metabolism and derangement of neurotransmission caused by a cholinergic deficiency. Anticholinergic activity is probably the most important cause of delirium; in fact, plasma levels of anticholinergic activity appear to directly correlate with delirium. Dopamine, serotonin, GABA, and beta-endorphin pathways also appear to be involved in the pathophysiology of delirium. Changes in the level of neurotransmitters, such as decreased cholinergic activity, increased dopaminergic activity, and decreased γ -aminobutyric acid-ergic activity, were thought to be responsible for delirium, but the interactions among neurotransmitters are complicated and incompletely understood (16,17).

Cerejeira et al (18) suggested that cerebral effects of the systemic inflammatory response during the perioperative period, possibly aggravated

by anticholinergic effects of drugs administered during this phase, might be responsible for postoperative delirium. Increase in serum cortisol levels from the stress of surgery may also be responsible for postoperative confusion (19,20). (Table1) Factors related with Postoperative Delirium (Table1) Elderly patients (>65 years old)

- Male gender
- Cognitive impairment
- Polypharmacy (>3 medications, psychoactive medications)
- Surgical pathology (hip fracture)
- Preoperative depression
- ASA III-IV patients
- Perioperative hypotension
- Metabolic disorders
- Malnutrition
- Fever or hypothermia

Clinical Course

According to the level of psychomotor activity, delirium can be divided into hyperactive, hypoactive and mixed (21,22). The hyperactive subtype is easily detectable, but the hypoactive subtype is hard to differentiate from depression or dementia and is often unrecognized. The hypoactive type occurs more commonly in elderly patients than other types (23). However, in many studies to date, the true nature of the psychomotor abnormality has been difficult to determine because of its fluctuation (observed more in longitudinal studies) and also the potentially confounding effect of medications used to treat delirium. Patients with hyperactive delirium are more likely to receive psychotropic medications and may have a better prognosis than patients with hypoactive delirium (24). These hypoactive patients are at substantially higher risk of mortality, presumably related to the delay in diagnosis (25).

The Impact Of Postoperative Delirium

Delirium has a far-reaching impact on patients' long-term health outcomes. One year from the diagnosis of delirium, 40% would have recovered, 25% of patients will have permanent cognitive impairment and 35% would have died (26). Most importantly, patients who experience delirium during their hospitalization have a 3- to 5-fold increase in mortality over those who do not experience delirium, with an increasing mortality risk over time.

Preventing Postoperative Delirium

Compared with the literature on prevention, rigorous evidence supporting the benefits of treatment for delirium is more limited. The management of delirium is based primarily upon expert consensus and observational studies, and only a small number of controlled clinical trials, which are difficult to perform in patients with cognitive impairment. Prevention must begin in the preoperative period and should include consultation with a geriatrician along with education and training of auxiliary staff. Prevention and therapy of delirium are based on the following principles:

- Avoiding factors known to cause or aggravate delirium, such as multiple medications, dehydration, immobilization, sensory impairment, and sleep disturbance
- Identifying and treating the underlying acute illness
- Providing supportive and restorative care to prevent further physical and cognitive decline
- Where appropriate, controlling dangerous and severely disruptive behaviors using low dose, short acting pharmacologic agents; so that the first three steps can be accomplished (27).

Treatment Of Post Operative Delirium

Nonpharmacological treatment: While nonpharmacologic methods of behavioral management have limited evidence to support their use, these methods are potentially able to save patients from pharmacologic and physical restraints. The use of psychoactive medications on a malfunctioning brain can produce unpredictable results and should be undertaken after carefully weighing the risks and benefits. Because nonpharmacologic methods have little potential toxicity, these should be the first line in the behavioral management of a patient with postoperative delirium (28).

Pharmacological treatment: The available evidence does not support the use of medications to prevent delirium in the acute care, intensive care or postoperative care settings (29-31). Investigators continue to study the potential benefit of cholinesterase inhibitors, antipsychotic agents, and sedatives.

Delirium is usually a marker of an underlying illness, therefore we must not forget to treat the underlying cause.

CONCLUSION

A single episode of delirium can result in a doubling of the odds ratio for death as well as an increase in the risk of admission to an institution and increase in dementia. It is also associated with an increase in duration of mechanical ventilation, in addition to total length of ICU and hospital stay.

The cost of treating delirium is high. A proper understanding of the risk factors and to enhance health care professionals' knowledge of postoperative cognitive complications especially in older surgical patients, seems to be pertinent.

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