

MANAGEMENT OF DELIRIUM IN AN ACUTE CARE HOSPITAL

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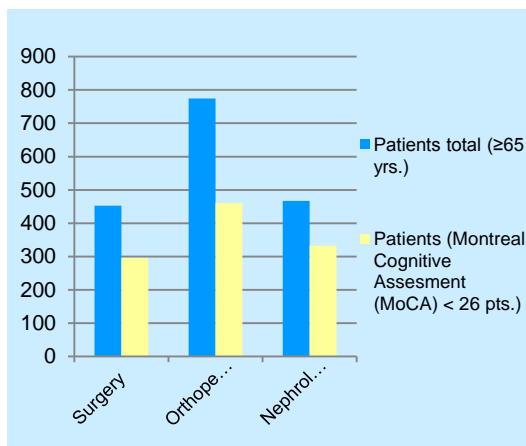


Fig. 1 Patients with a high risk of getting a delirium

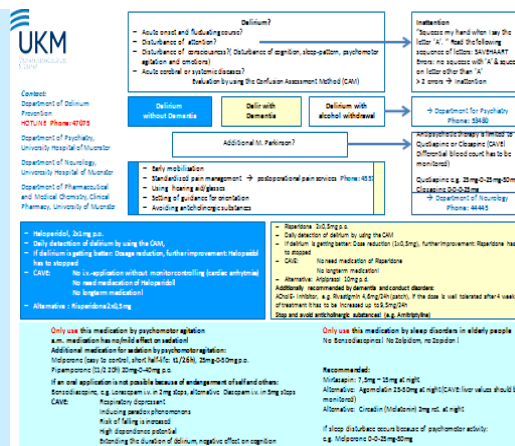


Fig. 2 Medication guideline for delirium treatment (University Hospital Muenster)

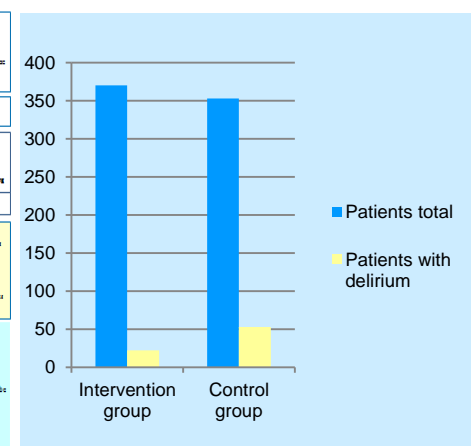


Fig. 3 Incidence of delirium in each group

Substances for delirium treatment	Control group (n=51) retrospective	Intervention group (n=51) prospective
Haloperidol	45%	14%
Risperidone	12%	69%
→PRN medication of high-potency antipsychotics	→ 80%	→ 0
Low-potency antipsychotics (Melperone/ Pipamperone)	24%	79%
Benzodiazepines	59%	4%

Tab. 1 Case-control study: evaluation of medication for delirium treatment in surgery patients

Background

Delirium is a common and severe condition among hospitalized older people. Due to the dominating symptoms, like drowsiness and inactivity, the hypoactive delirium receives less clinical attention than the hyperactive delirium characterized by agitation and restlessness. Because of this, 30 to 60% of delirium are undiagnosed (1).

The consequences, especially for the elderly people, are dramatic: It leads to a longer lasting cognitive decline and impairments in every-day functioning with substantial health care costs. 50% of cases have irreversible cognitive deficits. The mortality is temporary 20-fold increased (2).

The most important predisposing risk factors for a delirium are the age, the cognition, the multimorbidity and the associated polypharmacy. Many drugs have a strong anticholinergic risk profile, which leads to an acute neurotransmitter-dysbalance. 30 % of delirium are induced by drugs (3).

Advances in prevention, diagnosis and treatment can improve recognition and risk stratification of delirium and its consequences.

For this purpose the University Hospital of Muenster established a multidisciplinary department, which developed nonpharmacological and pharmacological guidelines for prevention, diagnosis and treatment of delirium. It consist of neurologists, pharmacists and specialized nursing staff. We conducted an open label randomized controlled trial to show the effectiveness of these multidisciplinary approaches in surgical and nonsurgical patients aged 65 years and over to reduce the risk of delirium.

Methods

• Patient population:

- ❖ Aged 65 years and over
- ❖ Three days or longer hospitalization in trauma surgery, orthopedics or nephrology
- ❖ At admission every patient ≥ 65 years is screened by the Montreal Cognitive Assessment (MoCA) to objectify the risk for getting a delirium
- ❖ Enrollment by MoCA < 26 points
- From January 2016 to October 2017, 1694 patients ≥ 65 years were screened at admission by using the MoCA. Overall, 1089 patients (64%) had an elevated risk of getting a delirium (MoCA < 26 points.) (Fig.1). A total of 723 patients (43%) could be included and randomized
- The intervention group (n=370) received our innovative standardized management of delirium:
 - ❖ Specialized nursing
 - ❖ Constant detection of delirium by using the Confusion Assessment Method (CAM) on the first three days or on the first three postoperative days
 - ❖ **Pharmaceutical management:**
 - ❖ Medication optimization at admission (avoiding inappropriate drugs with a high risk of anticholinergic effects on the central nervous system)

- ❖ Treatment of delirium by using the innovative medication standard (Fig.2), which has been developed by an interdisciplinary team. It is adapted to geriatric patients and the management of an acute care hospital

- The control group (n=353) was treated as usual without any standardized strategies.
- The cognitive outcome of each patient was assessed by a second MoCA before discharge
- Follow up: Every patient, who develops a delirium, will be screened by a third MoCA to evaluate and compare the cognitive longterm course
- Second follow up: Every patient in each group will get an interview to note the mortality, the care degree and the score of the Instrumental - Activity of Daily Living Scale (I-ADL)

Results

The risk of a manifest delirium was more than 50% higher in the control group compared to the intervention group. (15% control group vs. 6% intervention group (OR 0.35, 95% CI 0.21-0.60, $p < 0.001$)) (Fig.3).

The duration of delirium in the intervention group was reduced by half, compared to the control group (4 vs. 8 days ($p < 0.001$)).

In a case-control study, we designed for evaluation of medication for delirium treatment, we could initially show that the inappropriate PRN medication of high-potency antipsychotics could be reduced by 100% in the intervention group. Furthermore the use of benzodiazepines could be reduced by 90 % due to optimized medication strategies by clinical pharmacists (Tab.1).

Conclusion

The current results of our study have proven that not every delirium can be prevented, but the rate and the duration of delirium can be significantly reduced.

Furthermore the results emphasize the importance of clinical pharmacists: The inappropriate use of non-evidence-based medication of delirium (e.g. inappropriate application of antipsychotics, benzodiazepines and anticholinergic substances) could be reduced by intensive training of medical staff and pharmaceutical counseling.

Considering the demographic change, we recommend to implement a multidisciplinary approach for consistent and standardized management of delirium.

References

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