بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

Incidence Of Post-Operative Delirium In Geriatric Patients Undergoing Hip Replacement Surgery Using Pre-Operative Haloperidol

Thesis

Submitted for partial fulfillment of OF Master Degree In Intensive Care Unit

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رسالة

توطئة للحصول علي درجة الماجيستير في الرعاية المركزة

مقدمة من

الطبيب/ وائل صفوت الملاح

بكالوريوس الطب و الجراحة-

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List of Abbreviations

AD	: Alzheimer disease
CAM	: Confusion assessment method
CGI score	: Clinical global impression score
CNS	: Central nervous system
CSF	: Cerebro-spinal fluid
CT	: Computed tomography
DSM-IV	: Diagnostic & statistical manual disorder 4 edition
ECG	: Electro cardiogram
EPS	: Extrapyramidal symptoms
HELP	: Hospital elder life program
ICD-10	: International classification of diseases 10 edition
IM	: Intra-muscular
IV	: Intra-venous
MMSE score	: Mini mental score exam score
PDD	: Parkinson disease with dementia
POD	: Post-operative delirium
QTP	: QT prolongation
RCT	: Randomized control study
Tdp	: Tortsades de pointes
VaD	: Vascular dementia

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ABSTRACT

Background: Delirium is acute onset & fluctuating disturbance in mental state that causes patient appear confused, disoriented or with difficulty to focus and with decline in cognitive function (memory, orientation, speech), circadian disturbance and behavior of patient either agitated or sleepy,in other words sudden confusion. **D**elirium, also known as acute confusional state, is an organically-caused decline from a previously baseline level of mental function that develops over a short period of time (hours to days). Delirium is not a disease itself, but a syndrome encompassing disturbances in attention, consciousness, and cognition. It may also involve other neurological deficits, like psychomotor disturbances (e.g. hyperactive, hypoactive, or mixed), impaired sleep-wake cycle, emotional disturbances, and perceptual disturbances (e.g. hallucinations and delusions).

Objective: To determine incidence of post-operative delirium in geriatric patients undergoing hip replacement surgery using pre-operative haloperidol.

Patients and Methods: This study is conducted through geriatric patients undergoing orthopedic surgery and the incidence of pre.& post-operative delirium. This randomized, double-blind, placebo-controlled trial was conducted post-operative surgical ICU in Demerdash hospital which was closed unit and had the same well-established pain, sedation and delirium assessment practices. A delirium was monitored through CAM score in their stay in ICU (max. for &7 days from admission post-operative).

Results: Several trials stated that the usage of Haloperidol pre-operative decrease the duration and the severity of Delirium rather than the incidence of delirium. In our trial we will detect the incidence of delirium with using prophylactic haloperidol in geriatric patients undergoing Hip replacement surgery. In our study revealed that using prophylactic pre-operative haloperidol decrease the incidence of delirium among geriatric patient as well as decreasing both the duration and the severity of delirium among the study group.

Conclusion: Our study and results revealed that Haloperidol as antipsychotic drug have beneficial effect on reduction of incidence of delirium in post-operative geriatric patients, also it showed effect on duration of delirium and severity of the disease as well as ICU stay.

Keywords: Intensive care unit, postoperative delirium

INTRODUCTION

Delirium is often used to refer to disturbance of conscious level (reduced clarity and awareness of the surrounding environment with reduced ability to focus, sustain or shift attention) and also drowsiness, disorientation, hallucinations and change in cognition. Occasionally sleeplessness, severe agitation, visual hallucination and irritability may be part of delirium ***(Sprung et al., 2017).***

Delirium is a neuropsychiatric disorder characterized by an acute onset of confusion and consciousness alterations that fluctuate during the day. The incidence of delirium in intensive care (ICU) patients is high up to 80%, and its occurrence is associated with prolonged duration of mechanical ventilation, increased ICU- and hospital length of stay, unplanned removal of tubes and catheters and an increased mortality. Therefore, preventive treatment for delirium may be beneficial. (***Van den Boogaard, 2012)***,

So, Delirium is a common life threatening syndrome and preventable geriatric condition. According to the evidence currently available, Delirium complicates patient care and increases hospital costs for approximately 20% of patients over 65 years of age ***(Spivack,et Al 2010).***

Patients in the Intensive Care Unit (ICU) are vulnerable for developing delirium due to the severity of illness, use of sedatives or pain medications, and environmental factors in ICU. Postoperative delirium is associated with increased mortality rate, increased length of hospital stay and high morbidity rates. Many studies have shown that post-operative patients experiencing delirium have increased risk of prolonged or even permanent cognitive disorders ***(Abelha et al., 2013).***

Postoperative delirium is one of the complications of extensive surgery. Delirium in critically ill patients usually results from a multitude of pathological and non-pathological factors. Risk factors for delirium in postoperative patients include advanced age, smoking history, alcohol use, electrolyte imbalance, dehydration, pain, hypoxia, sleep deprivation, medications (anticholinergic, central nervous depressants, sedative/analgesic), length of surgery, and hyper/hypoglycemia ***(Arumugam et al., 2017).***

Hip replacement surgery is a major & stressful surgical procedure in geriatric age group when patient experience numerous physiological and psychological challenges . Stress and the trauma from surgical procedures and their associated medications may result in both psychologically and somatically disturbance. When stress levels exceed the ability of the person to cope effectively, symptoms arise and treatment may be required.

Postoperative delirium (POD) is an example of an acute syndrome of postoperative distress arising after major surgery and requiring immediate medical care***(Hans-Bernd Rothenhausler et al., 2005)***

Delirium is a behavioral disturbance and serious complication commonly found in consultation-liaison psychiatry. Its prevalence and incidence rates are varied possibly depending on severity of illness, patient population, the method of assessment and the diagnostic criteria. Prevalence of delirium ranges from 10% to 30% and its incidence is between 3% and 29% for patients admitted in general hospitals (Maneeton et al., 2010a, Praditsuwan et al., 2012). High prevalence and incidence are noted in elderly and severely ill patients. For instance, the prevalence of delirium in elderly and ICU patients are up to 40% and 80%, respectively .

(Bledowski and Trutia, 2012, Praditsuwan et al., 2012).

Delirium probably results from diverse pathophysiological mechanisms, including derangements of several neurotransmitter systems within the brain, but the underlying mechanisms are not fully understood. The most widely postulated theory is that delirium is caused by cholinergic deficiency with an excess of dopamine. The main mechanisms of action of haloperidol are thought to be antagonism at cortical dopamine (D2) receptors,

nigrostriatal pathway D2 blockade, and dis-inhibition of acetylcholine with acetylcholine increase. ***(Maldonado, 2008)***

In other conditions that are associated with cholinergic deficiency, such as Alzheimer's disease, haloperidol has a positive effect on delusions and hallucinations, which are symptoms of delirium as well. The documented therapeutic effects, as well as its pharmacological profile and a possible "priming" effect, suggest that haloperidol could prevent the occurrence of delirium or reduce its severity or duration, but no controlled studies have evaluated the prophylactic effect of haloperidol on postoperative delirium. There are potential side effects: hypotension (minimal), particularly with parenteral administration; sedation; altering of cardiac conduction; and extrapyramidal symptoms. In addition, haloperidol has a lower potency of cholinergic blockade than other neuroleptics. Keeping the total daily dose of 10mg may reduce the risk of extrapyramidal side effects ***(Liu et al., 2018)***.