Neurointervention In The Intensive Care Unit In Patients In Critical Situations

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ABSTRACT

Stroke remains one of the leading causes of disability and mortality worldwide. Neurointervention, which includes a wide range of methods and technologies, has become a key area in the treatment of stroke. This article reviews the main aspects of neurointervention in stroke, its advantages, methods and development prospects. The article discusses the importance of neurointerventional methods in patients treated in the intensive care unit (ICU).

Keywords: *strokes, imaging methods, contrast agents, neurointerventions.*

Introduction.

The field of neurointerventions is rapidly changing as more and more diseases are treated with less invasive methods. New treatments are possible with new devices, but smaller and less radiopaque devices also pose additional challenges when it comes to ease of treatment placement and evaluation [1].

Neurointervention is a method of medical procedures and techniques used to restore and maintain nervous system function in patients with neurological disorders or injuries. The intensive care unit specializes in the care of patients with severe nervous system conditions such as severe head injuries, strokes, subarachnoid hemorrhages, and other neurological conditions [2].

We offer a wide range of integrated technologies for a variety of neurointerventions. Now you can work with confidence with integrated imaging technologies and neurointerventional options resulting from intensive research with healthcare leaders and pioneers of interventional therapies [3-5].

Benefits of neurointervention for stroke:

Reduced treatment time: Some neurointervention techniques, such as thrombectomy, can rapidly restore blood flow to the affected area of the brain, significantly reducing time to treatment and improving prognosis [2-6].

Minimally invasive techniques: Neurointerventional procedures such as endovascular thrombectomy are less invasive than open surgery and can reduce the risk of complications.

Improved outcomes: Performing neurointerventions in an optimal time window can lead to significant improvement in treatment outcomes and reduced disability [7-9].

In a critically ill patient, neurointervention plays a crucial role in stabilizing the patient's condition and minimizing the risk of potential complications. These procedures may vary depending on the specific situation, but usually include the following aspects:

Monitoring: Continuous monitoring of important parameters such as blood pressure, pulse, blood oxygen levels and brain electrophysiologic parameters (e.g., EEG) allows neurointerventionalists to assess the patient's condition and respond to changes [8].

Early recognition and treatment of vascular disorders: In the case of stroke or other vascular disorders, neurointerventions may include thrombolysis or endovascular revascularization to restore blood supply to the affected area of the brain [9].

Management of intracranial pressure (ICP): Various methods can be used for elevated IOP, including drug therapy, drainage of the liquor, or even surgery to prevent brain damage [10].

Control of electrolyte balance: Critical care patients are often prone to electrolyte imbalances that can adversely affect nervous system function. Neurointerventions in this case may involve correction of electrolyte and body water levels [9-11].

Prevention and treatment of seizures: Critically ill patients may be at risk of developing seizures. Neurointerventions aim to prevent and manage seizures with anticonvulsants and other methods [12].

Ensuring adequate hemodynamics: This includes maintaining optimal blood pressure and blood flow to the brain, which is key to preserving its function in critical conditions.

The field of neurointervention is rapidly changing as more and more diseases are being treated with less invasive methods [13]. New treatments are possible with new devices, but smaller and less radiopaque devices also pose additional challenges when it comes to ease of placement and treatment evaluation. We offer a wide range of integrated technologies for a variety of neurointerventions. You can now work with confidence with integrated imaging technologies and neurointerventional options resulting from intensive research with healthcare leaders and pioneers of interventional therapies [11-14].

The invention relates to navigation of an interventional device. The technical result is to improve the accuracy of navigation of an interventional device within a tubular object structure. The system contains: an X-ray image capturing device; a processing unit; an interface; the X-ray image capturing device captures 2D X-ray image data in a single projection geometry of a region of interest of a tubular structure; the processing unit is made to detect an interventional device in a 2D X-ray image; determines a 2D position of the interventional device in the 2D X-ray image; superimposes a single 2D X-ray image on a previously acquired n

Material and Method of Study: The admission in a given year to the shock unit was 715 patients and the total number of strokes was 624 patients. Neurointerventional techniques were performed on 120 patients out of the total number of admissions. The 230 patients with strokes were of undifferentiated types, and carotid angiography was mainly performed as a diagnostic method. Considering that the main role in stroke diagnosis is played by diagnostic angiography of cerebral vessels performed in the majority of patients, the number of examined patients, information about anticoagulant therapy of these patients and, of course, MSCT.

Analysis and result: The examination of 120 patients showed that in 80%, i.e. 96 patients, stroke was detected at early stages and the necessary treatment was performed.

Conclusion. Studies show that neurointerventions in early stages of stroke and post-stroke rehabilitation, early detection of the disease and severe consequences of the disease in the patient can be prevented. Neurointervention in stroke represents an effective and promising approach to the treatment of this serious disease. With the development of neurointervention technologies and techniques, further improvements in treatment outcomes and reductions in disability among stroke patients are expected.

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