Comparison of Emergency Critical Care between China and the United States

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Abstract. This paper introduces the integrated management mode of emergency critical care in China, disease assessment tools, strengthening psychological nursing intervention, the development trend of holistic emergency care, the current situation of emergency critical care unit and nursing practice in the United States, and probes into the current situation of emergency critical care unit and nursing practice in the United States The global common trend of emergency critical care between China and the United States in the need of basic emergency and emergency care, training and evaluation of specialized nurses, and emergency care system.

Keywords: Emergency; Severe and critical care; China; USA; Comparative study.

1. Introduction

In order to explore the theme of emergency medicine comparison between China and the United States, we need to solve several goals: to understand the current situation of emergency critical medicine in two countries; to be able to describe the current situation, role and activities of organized emergency critical care; to discuss historical milestones, successes, failures and experience training, so as to share with each other.

2. Current situation of emergency critical care in China

2.1. The integrated management mode of emergency critical care is conducive to the training and evaluation of specialized nurses [1]

1) *The development of critical care service system needs a high level of professional nursing team to support the development of critical care*. At present, there are two important trends: on the one hand, we emphasize the early and high-level rescue of critical patients, that is, "the application of critical care technology in pre hospital first aid"; on the other hand, the number of all kinds of critical patients is increasing rapidly, how to establish a green channel based on emergency center and critical department, shorten the rescue cycle, and improve the success rate of rescue. In order to adapt to the development of critical care and improve the level of specialized nursing, it is urgent to establish a team of specialized nurses to adapt to the development of emergency critical care. 2) *There is a lack of standardized training and evaluation system for the growth of emergency nurses in China*. Most of the existing emergency and critical care personnel in China are trained only in emergency and critical care, and their quality and strength are far from that of specialized nurses. The lack of professional nurses will lead to the decline of nursing quality and the increase of safety accidents, which will eventually restrict the development of the whole nursing ability of critical illness and affect the development of clinical medical work. Critical clinical nursing shoulders the crisis of high-quality nursing human resources. 3) *Implementing the integrated management mode of emergency department and intensive care department effectively improves the core competitiveness of specialized nurses*. According to the current situation of clinical division of labor, the traditional emergency department mainly undertakes the tasks of pre hospital first aid, hospital shunt referral, etc., the emergency nurses generally lack the corresponding critical nursing skills; critical nursing mainly undertakes the nursing work, and the ICU nurses generally lack the corresponding first aid skills and awareness. The traditional emergency and critical patient nurses receive independent

professional core competence training, and their knowledge and skills are relatively independent. The research shows that after the adjustment of the integrated structure of the emergency department and intensive care unit, the nurses in this group can be competent for most of the intensive care work in terms of the quality and practical operation ability of intensive care, and the core ability of intensive care is significantly improved. 4) *The integrated management mode shortens the training and maturity of specialized nurses*. At present, there is no formal training program for emergency and critical care nurses in China. The training methods of foreign specialized nurses are relatively perfect, but the training cycle is long and the management cost is high. In China's current system and national conditions, there are practical difficulties in clinical plagiarism. The research shows that the integrated management mode of the emergency department and the intensive care department can realize the sharing of the emergency department teaching and human resources, expand the working radius of the specialized nurses, reduce the training cost, shorten the training cycle, cultivate a qualified and time limited emergency and critical specialized nurse, accelerate the construction of the clinical emergency and critical specialized nurse team and discipline, and meet the requirements of The demands of emergency and critical nurses in the hospital were discussed. *At present*, the training methods and application of core competence of emergency and critical care nurses in China are in an independent state. The training method is mainly aimed at the independent nursing professional quality and skills of each department. It does not consider that there are many cross contents in the core competence requirements of emergency and critical care, and it lacks systematic and general research on the cultivation and evaluation standard of nursing core competence. Therefore, the establishment of an integrated model of emergency department and intensive care department and the implementation of a systematic training system for the core competence of specialized nurses can effectively improve the core competence of specialized nurses, promote the growth of specialized nurses, adapt to the current needs of emergency critical specialized nurses, adapt to the development direction of China's nursing specialization, and conform to China's national conditions and the status of nursing.

2.2. The evaluation tools of critical illness can effectively promote the development of critical care[2]

Several common critical disease assessment tools include: severity index (ESI), shock index (SI), modified early warning score (mews), acute physiology and chronic health assessment II (APACHE II). Application: 1) *Realize seamless connection of emergency treatment*. In the clinical medicine experiment, 1500 emergency patients received mews treatment. It can not only improve the efficiency of emergency triage and treatment, but also ensure the timeliness and rationality of the application of medical resources, strive for more treatment time and reduce the mortality of emergency patients. 2) *Improve the efficiency of emergency triage*. Shunting is the first step for medical institutions at all levels to receive emergency patients. Its effectiveness and accuracy are directly related to the treatment efficiency, treatment cycle and safety of patients. In clinical medicine experiment, mews and APACHE II were used to divide the emergency patients into three stages: age, medical history and physiological index. The severity of the patients' condition was graded according to the basic situation of the patients, and then the work of hierarchical summary was carried out. The severity of the patients' condition was divided into three stages: light, medium and heavy, so as to realize the diversion of the emergency patients and avoid the emergency room Crowding to ensure that the shunt results are recognized by patients and their families. 3) *Ensure patients are treated at the best time*. In the guideline for cardiopulmonary resuscitation updated in 2015, it was clearly pointed out that the establishment of rapid response team and emergency medical team (MET) for adult patients can effectively reduce the incidence of cardiac arrest. As early as 1990, met was established in Liverpool Hospital, Australia, and 10 met call standards including patients' heart rate and respiration were stipulated. It has been proved by practice that the sharing efficiency of medical resources has been greatly improved by adding met to the first aid work. Mews score is the main basis of met emergency treatment, which ensures that patients receive treatment at the best time. *Therefore*, choosing a reasonable critical disease evaluation tool can improve the effect of emergency nursing, realize the seamless connection of emergency treatment, improve the efficiency of emergency triage,

and ensure patients to be treated at the best time. Severity index, shock index, early warning score, acute psychological and chronic health assessment are four assessment tools widely used and often used in emergency nursing. According to the general characteristics of patients in emergency department and the application advantages of various evaluation tools, medical staff in emergency department of medical institutions at all levels can choose one or more tools to evaluate the severity of emergency patients scientifically to determine the order of patients receiving treatment.

2.3. Strengthen the role of psychological nursing intervention in the clinical nursing of emergency critical patients [3]

In the clinical emergency treatment, patients and their families will have adverse effects on patients' condition due to different degrees of bad psychological emotions, which is easy to cause emotional excitement of family members and lead to doctor-patient disputes. Therefore, it is necessary to take effective treatment measures to alleviate the bad emotions of patients and their families and improve the quality of emergency nursing service. In the clinical nursing of emergency critical patients, psychological intervention can effectively guide the patients and their families' bad psychological emotions, improve the stability of patients' condition, ensure the treatment and nursing cooperation of patients' families, effectively treat the patients, improve the quality of nursing services, and establish a hospital shape Elephant. The implementation of psychological intervention in the clinical nursing of emergency critical patients can effectively guide the patients' bad mood, establish good communication with their families, promote the harmony between doctors and patients, and achieve remarkable clinical effect.

2.4. Emphasis on holistic emergency care of critical illness [4]

It is feasible to implement holistic emergency nursing intervention in the rescue of critical patients. It is suggested that holistic emergency nursing intervention based on routine nursing is of great significance. Personalized nursing follows the principle of people-oriented, and carries out different nursing work from daily life, diet, psychology and other aspects. Characteristic nursing of traditional Chinese medicine is more conducive to health guidance of fracture patients through nursing intervention of traditional Chinese medicine technology. Results it is suggested that the combination of individualized nursing and characteristic nursing of traditional Chinese medicine is beneficial to optimize the overall nursing work of fracture patients, and has more significant effect and effect in clinical practice. That is to say, the application of personalized nursing combined with characteristic nursing of traditional Chinese medicine in patients can significantly improve the prognosis effect, play a positive role in patients' health and rehabilitation, and have the value of promotion.

3. Development trend of emergency critical care in the United States

3.1. Current situation of emergency intensive care unit

3.1.1. The number of intensive care admissions in the US emergency department increased, and the beds were tight

Some studies [5] described the changes in the amount of intensive care provided by emergency departments in the United States from 2001 to 2009, measured the annual emergency time and the number of emergency visits of emergency patients every year, including the clinical characteristics, demographic statistics, insurance status, environment, geographical region and emergency hospitalization time of critical patients. It was found that the number of critically ill patients admitted to emergency departments in the United States increased from 1.2 million to 2.2 million annually, an increase of 79%. The proportion of admission to ICU increased from 0.9% to 1.6% (P (trend). This trend continues to this day. Due to the increase in the number of emergency room visits and the length of stay, the number of intensive cares provided by emergency rooms in the United States has increased significantly. The increased burden of intensive care will further increase the pressure on the already surplus emergency systems in the United States.

3.1.2. The relationship between ICU and survival and inpatient ICU [6]

In the emergency room of academic medical center, the implementation of ICU in emergency room can reduce the risk adjusted mortality of patients in emergency room from 2.13% to 1.83%, and the admission rate of ICU from 3.2% to 2.7%. It means that the implementation of emergency-based ICU

is related to the improvement of survival rate and the reduction of the number of inpatients in ICU. The availability of beds in intensive care unit (ICU) is decreasing, and the shortage of ICU doctors leads to the shortage of ICU capacity. Therefore, for patients in need of ICU level care, the increase in ED boarding time was associated with worse outcomes. Using the electronic health records of all emergency room visits from September 1, 2012 to July 31, 2017, we recorded the experiences of clinicians in a large academic medical center in the United States, with about 1000 adult emergency visits per year. The implementation of EC3, an ED based ICU, aims to provide ICU level rapid care and seamless transition to inpatient ICU in an ED environment. The main results were 30-day mortality and the rate of ED entering ICU. The implementation of new ICU based on ED is related to the improvement of 30 days survival rate and the reduction of the number of inpatients in ICU. Further research is helpful to further explore the value of this new medical service model in various medical systems.

3.2. Current situation of intensive care practice

3.2.1. Learning, decision-making and transformation in intensive care practice

ICU nurses are key providers in a highly sensitive environment. There is a qualitative study [7] to explore ethical decision-making in intensive care practice. In order to ensure the representativeness of the data, 15 ICU nurses with different experience and education levels were selected. The theoretical concepts of experiential learning, point of view transformation, action reflection and principle-based ethics are used as a framework for obtaining information from participants. A new model of centralized reflection in moral decision-making is established. The results show that it is very important to have an example or mentor to guide the moral decision-making process for focused moral discourse and decision-making.

3.2.2. Factors influencing ICU nurses

Reasons for working overtime or not working overtime

Around the world, there are more and more registered nurses working overtime. This is especially true in critical care environments, where the number and acuity of patients fluctuate unpredictably, and more professional nurses are needed. There are studies [8] to explore the reasons why the ICU nurses work overtime or not in the north America. Additional research is also needed to understand the administrative decision-making process leading to the use of overtime pay.

Burnout

Burnout and its development in intensive care nurses is a widely studied concept, but it is still a problem in North America and even in the world. Due to long-term occupational pressure, critical care nurses are particularly prone to burnout, including high patient sensitivity, high sense of responsibility, using advanced technology, caring for families in crisis and falling into moral suffering, especially long-term unnecessary life. The purpose of some researches [9] is to explore how the long-term pressure on ICU nurses can promote the development of burnout and how to prevent it. Literature review from 2007 to 2012 includes search term burnout, moral distress, compassion fatigue, intensive care, intensive care and nursing. Search is limited to adult population, English and Western culture. The results show that nurses play an important role in preventing burnout by creating supportive working environment for ICU nurses. The strategies for nurse managers to do this include: the use of ICU nurses; the establishment of University relationships between different disciplines; and the provision of consultants or grief groups to report in stressful situations such as death. In addition, ICU nurses can help prevent burnout by becoming a support system for each other and implementing self-care strategies.

Family needs

When other people in ICU need to enter the family, most of the research on family needs focuses on the concept of family. Some old studies [10] examined the views of ICU nurses on family needs. 126 ICU nurses have been given the questionnaire of "family needs of seriously ill patients". Most nurses think that family needs are important or very important, while 85% of nurses say they are able to meet family needs and have time to meet their needs. Cognitive families rank higher than psychological or personal and physical needs. There are significant differences in the needs of nurses from four intensive care units for their families, and the results may be affected by the sensitivity of

patients to a single ward and the length of stay. Nurses' views on family needs are influenced by work units, length of intensive care practice, education preparation and nursing time.

3.2.3. Improve the ICU skills of non-ICU nurses [11]

Critical care courses for non-critical care nurses are developed to meet the needs of nurses for additional skills, as patients' acuity is increasing. In order to be successful, staff development nurses must provide input to ensure that the course content meets the needs of nurses in their facilities (hospitals, sanatoriums and home care environments).

3.3. Improve practical efficiency

Some research teams [12] suggested that the floating emergency intensive care unit should be introduced into the academic emergency department. The implementation of the basic key nursing support courses in the emerging key nursing system can also play a certain effect [13]. The decision-making in emergency intensive care can be based on the evidence-based manual [14]. It can also be achieved by starting 24-hour emergency and intensive care practice [15].

4. The global trend of emergency critical care in China and the United States

Every year, serious diseases cause millions of deaths. Due to the lack of priority, coordination, timely identification and basic coverage of life-saving treatment, the care of critical patients is often ignored. In order to improve care, a new focus has been put forward by some scholars [16] which is basic emergency and emergency care (EEC) - all critical patients should receive care in hospitals around the world. Basic emergency and critical care should be part of universal health insurance, applicable to all countries in the world, and to patients regardless of age, gender, basic diagnosis, medical specialty or hospital location. Basic emergency and emergency care is pragmatic and low-cost and has the potential to improve care and significantly reduce preventable mortality. There are some differences in details between China and the United States in this regard, but the overall trend is to strive to improve the maximum nursing effect.

China and the United States also attach great importance to the training and evaluation of specialized nurses.

Emergency care system is an important part of American medical system. In addition to providing acute resuscitation and life-saving and limb care, the emergency system provides substantial support to doctors outside the emergency department and serves as an important safety net provider. In the event of a disaster, emergency care systems must be able to proliferate rapidly to accommodate a large influx of patients, sometimes with little or no notification. The extreme demands placed on the system on a daily basis can promote innovation and adaptation, which are invaluable in responding to disasters. However, excessive and inappropriate use is wasteful and may weaken "surge capacity" when it is most needed. Some features of the American medical system put pressure on the emergency system. Some studies [17] have explored the policy issues related to the establishment of emergency care system, which can more effectively meet the needs of individuals for emergency care, and meet the broader needs of the community in the event of a disaster. Strategies to redesign emergency care systems must include the active participation of patients and communities, and pay close attention to how incentives can reward quality and efficiency across the health system. China has also conducted a lot of research in this area. This is also a global trend.

5. Conclusion

Enabling emergency intensive care medicine to respond to the specific specialization of medical practice in the two countries, while also meeting the common needs and construction of global integration, is the core point of exploring the development of Chinese and American emergency intensive care.

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