

25th Congress of the EAHP - Hospital Pharmacy 5.0 - the future of patient care

Critical care multidisciplinary team - the role of the pharmacist

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1. Introduction

Intensive care units (ICUs) provide care for the most severely ill hospitalized patients. The staff working in intensive care is generally made up of anesthesiologist or intensivist doctors and bedside nurses. But in recent years, the intensive care team has been increasing, so there may also be clinical pharmacists, respiratory therapists, dietitians, psychologists and clinicians-in-training.

The ICU team is distinguished from other health care teams mainly in:

- the high complexity of handling each patient
- work dynamics, with short stay patients
- the emotionally hard work environment



Working as a team in the intensive care unit has several implications:

- Effective communication is needed between team members: transfer information, ideas, opinions ...
- Team members must trust in the knowledge, skills and training of others.
- Team leadership should foster a sense of shared responsibility for patient care.

2. From the past to the present

In the last 30 years, the concept of pharmaceutical care has become more complex, and goes far beyond simply providing medications to patients.

In 1990, Hepler and Strand defined pharmaceutical care as a patient-centered approach, and thus work to identify, solve and prevent patient problems related to medication. In addition, they proposed that pharmaceutical care was a necessary element of quality medical care and should be integrated with other elements of the provision of medical care to maximize patient benefit.

Following the work of Hepler and Strand, various models of pharmaceutical care have been developed that integrate the pharmacist into health care teams: intensive care, oncology, diabetes treatment, primary care ...



3. What are the pharmacist's main contributions in intensive care?

The pharmacist's main actions in intensive care are summarized in: optimization of therapy and safety.

- **Detect prescription error:** Identify drug-related problems: interactions, dose adjustment, allergy to drugs...

One of the most frequent problem is related to anti-infective agents, and this was mainly due to the over-dosage of drugs.

So the dosage adjustment is one of most frequent interventions performed by the pharmacist.

Keep in mind that there are several factors that can influence the dosage of drugs. Patients admitted to the intensive care unit suffer changes in renal function, liver

function, volume of distribution, albumin level... that may affect the pharmacokinetics and pharmacodynamics of the drugs. And in addition, these changes can be rapid, in hours, so that continuous attention is required to avoid toxicity, overdosing or, on the other hand, interactions that can also decrease the therapeutic levels of various drugs.

- **Detect physicochemical incompatibility between drugs infused**, that can lead to drug inactivity, catheter occlusion, embolism or inflammatory reactions. The pharmacist reviews and develops strategies for their prevention.

Anti-infective agents and gastrointestinal drugs were the most frequently implied.

The pharmacists have an important role to play in raising awareness of nurses, and proposing adequate tools and solutions to reduce their incidence. For example, one of the most important recommendations to avoid this problem is to use the enteral route for medication administration.

- **Pharmacokinetic-drug monitoring:** Physiologic alterations in critically ill patients can significantly affect the pharmacokinetics of drugs used in the critically ill patient population. The main alterations can affect to the absorption, distribution, metabolism, and excretion of drugs. Several antibiotics and immunosuppressive drugs are the medications that are most monitored in the intensive care unit.

- **Nutritional attention:** The most common intervention is: prescription and delivery of parenteral nutrition, route and formula of enteral nutrition, indication of nutrition support therapy and nutritional supplements, and monitoring of refeeding síndrome.

- **Provide information on drugs** and document adverse reactions.

- **Prescription of the usual** medication of the patient prior to admission in intensive care. Assess reintroduce that medication and look for alternatives if drugs are not available in the hospital.

- **Indication of prophylaxis:** especially stress ulcers and deep vein thrombosis

4. What is the Impact on Patient Outcome of Pharmacist Participation in Multidisciplinary Critical Care Teams?

Several studies have shown that the intensive care team that has integrated a pharmacist has less incidence of mortality, less stay in the critical care unit, and there was a lower incidence of adverse drug effects, both preventable and non-preventable.

It is interesting that the pharmacist in intensive care leads the nutrition therapies and the nutritional status of the patient.

There are also several studies that support the incorporation of a pharmacist into the interprofessional intensive care team to improve quality and efficiency.

5. Finally we will discuss some practical cases of how we work in our hospital.

The key to obtaining good results is to achieve teamwork.

Teamwork implies coordination, attention, communication and respect for the opinion and criteria of other colleagues.

In day-to-day work in intensive care, rounds are of great importance. In the rounds both the medical team and the pharmacist and intensive care nurses participate. In addition all opinions are heard, some of them can be debated to reach a consensus. But it is very important to assess the criteria of all team members.

Another important aspect of rounds is to perform some of them at the bedside. For this it is also important to have adequate computer logistics, where you can view all patient data: constants, analytics, medical and nursing notes, tests performed and planned, etc ...

Patient care discussions during rounds of the interprofessional team benefit from being patient-centered and patient-oriented and future-oriented.

6. Key points

- From the medical point of view, the key is to have an open mind to receive opinions from other professionals that will be of great help for the care of the critical patient.
- Having in the intensive care team specialists in hospital pharmacy is a plus of quality in patient care. Mainly because they contribute to optimize the treatment, the nutritional status of the patient and avoid toxicity, interactions and antibiotic resistance.

