Preventing The Septic Shock In An Oncological Patient With Febrile Neutropenia Submitted To Chemotherapy: The Nurse's Responsibility

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1) INTRODUCTION

Febrile Neutropenia (FN) is one of the most common complications from chemotherapy. It is defined as a neutrophil count of less than (<) 500 cell/mm³ (cells per cubic millimeter) or a count < 1000 cell/mm³ with presentation of a predictable decrease to < 500 cell/mm³ in 48 hours, associated with one isolated evaluation of oral temperature of 38,3°C (degrees celcius), or temperature equal or above 38°C for over an hour (National Comprehensive Cancer Network, 2009; Cavalli, F.; Kaye, S.; Hansen, H.; Armitage, J & Piccart-Gebhart, M., 2009).

According to Cavalli et al. (2009), in the context of FN a possible infection will potentially progress to severe sepsis, with an exponential increase of patient mortality and mobilization of resources such as Emergency Department and/or Intensive Care Units.

The time since administration of the cytostatic drug and the nadir – the lowest level of haematologic count after which medular recovering starts, will contribute to this (Costa, C; Magalhães, H; Félix, R. Costa, A. & Cordeiro, S., 2005).

For different chemotherapy regimens we have different nadir levels (variable essentially between 7 and 14 days).

Septic shock due to febrile netropenia on the patient who had chemotherapy is considered a medical emergency, and its evolution can be translated in the increase of mortality, cost for the cancer patient and mortality. The success of the treatment requires a quick, efficient and multidimensional approach.

Therefore, it represents an increase in days of admission and increased morbidity and mortality rates for this specific group of patients.

It is crucial to uderstand the responsibility of the nurse in the prevention of septic shock on the cancer patient with febrile neutropenia who received chemotherapy, identifying autonomous and interdependent nursing interventions.

3) METHODOLOGY

An integrative revision of literature was done.

All the clinical trials, randomized and non-randomized studies and cohort studies were included.

Apart from the previous criteria, articles which main objective was not to determine nursing interventions but containing it clearly identified throughout the study were also included. All the articles which did not allow full view were excluded.

For the purpose of presentation of results it was necessary to create units of text associated to nursing interventions in order to treat the data.

The revision of literature was done between 20 and 26 of December of 2016, using english and portuguese as preferable languages and articles between the years of 2011 and 2016.

The research databases used were: EBSCO – CINAHL Complete, Medline Complete, Nursing & Allied Health: Comprehensive Edition, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Cochrane Metodology Register, Health Technology Assessments; Medclatina, Library, Information Science & Technology Abstracts, NHS Economic Evaluation Database e Scielo – Scientific Electronic Library Online.

To complement the research the search engine Google®, and manuals of reference in oncology nursing were used.

5) CONCLUSION

Septic shock on the cancer patient treated with chemotherapy with FN is still a reality in health institutions.

From the 7 studies analysed several nursing interventions were grouped in Macro-units. The most prevalente interventions were “ **Patient Evaluation**”, “**Auxiliary exams for diagnosis**” and “ **Antibiotic Administration**”.

Nonetheless, nursing interventions for prevention of septic shock in patients with FN is still a field of study that needs further exploration in nursing sciences, requiring investment aiming to define clearly the nursing role in the daily *praxis*.

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2) OBJECTIVES

- Understand the responsibility of the nurse in the prevention of septic shock in the cancer patient submitted to chemotherapy with FN;
- Identify nursing interventions which promote prevention of septic shock on the cancer patient submitted to chemotherapy with FN.

4) RESULTS

4.1.) Categorization of interventions in Macro-Units:

Seven studies were selected as a sample and the results which allowed to answer the investigation question counted, identifying nursing interventions which promote the prevention of septic shock in oncology patients with FN.

As predicted in the research protocol, there was the need to create units of text associated to nursing interventions, in order to proceed to data treatment. Therefore 8 units were created which included different interventions:

- **Health Education (A1);**
- **Administration of prophylatic drugs (A2);**
- **Evaluation of the patient (A3);**
- **Use of scales (A4);**
- **Environmental control(A5);**
- **Auxiliary exams for diagnosis (A6);**
- **Following Protocols/Guidelines of action (A7);**
- **Antibiotic Administration (A8).**

As na example, the Macro-Unit “**Health Education**” (A1) encompasses several interventions as: inform patients and its carers regarding infection prevention (Dunbar, A.; Nielsen, D.; Shropshire, S. & Richardson, L., 2014); inform patients what neutropenia is, prevention and what to do when having fever (Dunbar et al, 2014; Roe & Lennan, 2014; Yee Mei, 2013); inform cancer patients (and relatives) about community acquired infection and provide strategies to minimise it (Dunbar et al, 2014; Roe & Lennan, 2014; Yee Mei, 2013); inform other health care professionals (Roe & Lennan, 2014); send to different health services according with the recognition of the first signs of alarm (Hawley, E.; Loney, M. & Wiece, M., 2011; Yee Mei, 2013).

4.2. Results Distribution:

The Macro-Units “ **Patient Evaluation**” (A3) (Dunkley & Macleod, 2015; Best et al., 2011; Dunbar et al., 2014; Roe & Lennan, 2014; Yee Mei, 2013; Hawley et al., 2011), “**Auxiliary exams for diagnosis**” (A6) (Dunkley & Macleod, 2015; Best et al., 2011; Roe & Lennan, 2014; Khan et al., 2012; Yee Mei, 2013; Hawley et al., 2011) and “ **Antibiotic Administration**” (A8) (Dunkley & Macleod, 2015; Best et al., 2011; Roe & Lennan, 2014; Khan et al., 2012; Yee Mei, 2013; Hawley et al., 2011), are the most prevalente in the studies - 6 out of 7 occurrences.

The Macro-Unit “ **Following Protocols/Guidelines of action** “ (A7) (Dunkley & Macleod, 2015; Roe & Lennan, 2014; Khan, et al., 2012; Yee Mei, 2013; Hawley et al., 2011) has na importante expression as well presenting in 5 out of the 7 studies analysed.

The Macro-Unit “**Health Education**” (A1) (Dunbar et al., 2014; Roe & Lennan, 2014; Yee Mei, 2013; Hawley et al., 2011) has a prevalence of 4 out of the 7 studies.

The Macro-Unit “**Use of Scales**” (A4) (Dunkley & Macleod, 2015; Yee Mei, 2013) has a small prevalence as it was only found in 2 out of 7 studies.

The Macro-Units “**Administration of prophylatic drugs**” (A2) (Yee Mei, 2013) and “**Environmental Control**” (A5) (Dunkley & Macleod, 2015) were the two categories with less expression, found only in 1 out of 7 studies.

All the studies regarding the Macro-Unit regarding “**Antibiotic Administration**” (A8) agreed that it should happen in 1 hour frame after the documentation of fever in order to minimise the development of infection (Dunkley & Macleod, 2015; Best et al., 2011; Roe & Lennan, 2014; Khan et al., 2012; Yee Mei, 2013; Hawley et al., 2011).