ORIGINAL RESEARCH PAPER

Oncology

DESCRIPTIVE ANALYSIS OF THE TIME OF MANAGEMENT BY NURSING IN THE AMBULATORY CHEMOTHERAPY SERVICE

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Jhonatan Durango Frías	General Practitioner
Christian Aguilar Erazo*	General Practitioner *Corresponding Author
Oscar Aldas Burbano	General Practitioner
Diana Tolagasí Quilumba	General Practitioner
Santiago Almeida Pinto	General Practitioner
Gabriela Claudio Pombosa	General Practitioner
Paola Claudio Pombosa	General Practitioner
Juan Navarrete Moreno	General Practitioner

ABSTRACT

Objectives: To determine the time required in the chemotherapy scheme managed in the institution as well as to stratify them by their complexity.

Methods: A descriptive analysis of the flow of patients attended during the week for both chemotherapy and procedures from January 2018 to May 2019. The time of care, preparation and perfusion of chemotherapy was determined to determine the time required for each patient.

Results: A direct relationship was obtained in a descriptive way between the number of patients attended in the outpatient chemotherapy service and the number of procedures (intravenous catheter heparinization and administration of Zoledronic acid) having a greater flow of patients on weekdays, while that Monday and Friday is the opposite, likewise it could be stratified in 4 levels of complexity of the different chemotherapy schemes.

Recommendations: In order to improve the workload of nursing it is necessary to distribute the complexity of their work, in order to administer the chemotherapy scheme of Level 4 and 3 to the first care of the morning, later distribute according to the level of complexity, as well as also the level of complexity 1 must be taken care of from noon, finally the attention of procedures must be coordinated from midday on Monday and Friday.

Conclusions: It is necessary in a service like Ambulatory Chemotherapy to stratify levels of complexity to provide better patient care, likewise to carry out a follow-up according to our recommendations and to evaluate in a year.

INTRODUCTION

Determining the needs of the nursing team may vary in the environment work and the required time to provide the best care for the patient, for which it is necessary to determine the different factors or characteristics in relation to the service such as: patient age, cultural grade, level of schooling, chemotherapy scheme as well as nursing competence in medical practice and finally the volume of patients required for their care. (1–4)

The SON (Society of Oncology Nursing) in 2001 was able to determine key points because the care of outpatients entails a greater designation of tasks in their management in relation to hospitalized patients. (5)

Jacobson et al, describe that the administration of antineoplastic agents is complex, and is associated with potential alterations in the patient, which requires their respective care, as well as pertinent recommendations to avoid errors in their administration and thus take advantage of policies standardization and management from other institutions. (6–8)

The institution has chosen to follow the flow of patient management in outpatient chemotherapy described by Jacob et al.

1. Review of clinical information and authorization of chemotherapy.
2. Review of informed consent.
3. Written reception of chemotherapy scheme.
4. Chemotherapy Preparation.
5. Attention the first minutes before possible complications.
6. Administration and monitoring of chemotherapy.
7. Monitoring and response to toxicities.

The objective of this research is to determine the flow of patients who attend outpatient chemotherapy as well as the time allocated to each patient and to be able to determine levels of care priority similar to those standardized by the nursing group in ambulatory chemotherapy management in Canada. (9.10)

METHODS

The nursing staff is made up of two nurses and 3 nurses, a nursing assistant, a secretary and a doctor, all trained and specialized in the oncological area.

The chemotherapy scheme of the patients who attended the outpatient chemotherapy service was recorded, protecting the patient's name or identification.

The outpatient chemotherapy service consists of 19 adult beds, 7 pediatric beds and a procedure room for activation / deactivation of implantable central venous catheter.

The nursing work schedule consists of two changes, during the morning 3 nurses (from 7:30 to 13:30) and during the afternoon 2 nurses from 11:00 to 17:00, the Descriptive statistical analysis was performed under the Microsoft Excel 2010 program.

RESULTS

A joint analysis of the preparation time of both patient medication and patient preparation, the time of chemotherapy infusion and the stay of the patient until their departure was made, for which we divided into two groups, patients receiving monotherapy and patients receiving polychemotherapy; as shown in Table 1 and 2.

Table 1.- Time of administration of monodrug chemot herapy and procedures

Quimioterapia	Preparación de medicación	Canalización de vías	Activación de cateter	Premedicación	Administración de Quimioterapia	Lavado de Vena	Retiro de vía periférica	Desactivación de cateter	Hidratación para CDDP o Ácido Zoledrónico	Tiempo en minutos	tiempo en Horas	Tiempo en horas en trabajo en conjunto
Rituximab	20	3		30	240	15	3			311	5:11:00	4:48:00
Cetuximab	15	3		115	90	15	3			241	4:01:00	3:43:00
Cisplatino-RT	10	5		15	90	15	3		90	228	3:48:00	3:33:00
Paclitaxel	15	3		45	120	15	3			201	3:21:00	3:03:00
Trastuzumab IV	20		20	30	90	15		20		195	3:15:00	2:55:00
Bevacizumab	15	5		60	90	15	3			188	3:08:00	2:48:00
Ácido Zoledronico	10	3		30	15	15	3		90	166	2:46:00	2:33:00
Carboplatino	10	5		15	90	15	3			138	2:18:00	2:03:00
Docetaxel	20	3		15	90	15	3			146	2:26:00	2:03:00
Etoposido	10	3		30	60	15	3			121	2:01:00	1:48:00
Trastuzumab IV	20	3		30	60	15	3			131	2:11:00	1:48:00
Vincristina	3		20	15	15	15		20		88	1:28:00	1:25:00
Gemcitabina	5	3		30	30	15	3			86	1:26:00	1:18:00
5 Fluorouracilo	15	3		15	30	15	3			81	1:21:00	1:03:00
Heparinizacion	3							20		23	0:23:00	0:20:00
Trastuzumab SC	5				5					10	0:10:00	0:05:00
Octeotride IM	20				5					25	0:25:00	0:05:00
Leuprolide IM	5				5					10	0:10:00	0:05:00
Asparaginasa IM	10				5					15	0:15:00	0:05:00
Metotrexate IM	3				5					8	0:08:00	0:05:00

IV: intravenous IM: Intramuscular SC: subcutaneus

Table 2.- Time of administration of Polychemotherapy

Esquema de Quimioterapia	Preparación de medicación	Canalización de vías	Activación de cateter	Premedicación	Administración de Quimioterapia	Lavado de Vena	Retiro de vía periférica	Desactivación de cateter	Hidratación para CDDP o Ác. Zol.	Tiempo en minutos	Tiempo en Horas	Tiempo en Horas a trabajo en conjunto
R-CHOP	60	3		30	390	45	3			531	8:51:00	7:48:00
AVBD por cateter	30		20	45	270	90		20		475	7:55:00	7:25:00
AVBD por vía periférica	30	3		45	270	90	3			441	7:21:00	6:48:00
TCH	70	3		45	270	45	3			436	7:16:00	6:03:00
Paclitaxel/Carboplatino	20	3		45	270	30	3			371	6:11:00	5:48:00
TAC	60	3		45	240	45	3			396	6:36:00	5:33:00
FOLFOX	40		20	30	215	30		20		355	5:55:00	5:15:00
Paclitaxel/Gemcitabina	25	3		45	210	30	3			316	5:16:00	4:48:00
Trastuzumab/Ac. Zol.	10	3		30	120	30	3		90	286	4:46:00	4:33:00
Docetaxel/Ac. Zol.	30	3		30	115	30	3		90	301	5:01:00	4:28:00
AC	20	3		45	150	30	3			251	4:11:00	3:48:00
Gemcitabina/Cisplatino	15	3		30	150	30	3			231	3:51:00	3:33:00

Ac. Zol.: Ácido Zoledrónico, AC: Doxorrubicine/ Ciclofos famide, TAC: Docetaxel/ Doxor rubicin/ Ciclofosfamide, TCH: Docet axel/Carboplatin/ Trastuzumab, FOLFOX: Oxaliplatin/ Fluorouracil/Leucovorin, RCHOP: Rituximab/ Ciclofosfamid/ Doxorrubicin/Vincristin/ Prednisona, AVBD: Doxorrubicin/ Dacarbazina/ Vinblastin/ Bleomicin

According to the monthly chemotherapy attention concentrate for the month of May 2019, it was possible to see an attention of 892 patients distributed in 359 men and 533 women, 32 patients treated for the first time and 692 treated subsequently, likewise 42 patients received administration intramuscular of Octreotide or Leuprolide, 245 administration of intramuscular chemotherapy, 306 intravenous, 28 subcutaneous and 216 by catheter, as well as 115 Heparinizations and 49 patients received administration of Zoledronic Acid.

DISCUSSION

The requirement and complexity of nursing staff care varies with respect to the patient and the proposed treatment scheme, as for Esther Green describes, some regimens require higher or lower level of care by the nursing staff so the objective of work in the oncological area is to distribute the level of complexity of the treatment finding a system that reflects the needs and requirements.

As well as other works presented, the benefit of the present investigation is to know and understand the time gained and occupied by each patient and the need for the nursing staff, resulting in a model that would allow stratifying the complexity of the patients by levels and organizing the Day of the week to try.

Julie Slide describes the levels of complexity in other institutions to the point of indicating a level I when we have a maximum time of 30 minutes of attention, Level II of 30-92 min, Level III from 1 to 2 hours, Level IV from 2 to 4 hours and level V greater than 4 hours, in our institution there is no management of attention by levels so our recommendation is to start a process of this nature but to our requirement and service needs.

Based on the complexity levels of the Outpatient Chemotherapy Service of the Institute of Neoplastic Diseases (INEN) of Peru, we could modify our requirement to:

Level I: administration of subcutaneous or intramuscular medication

Level II: time less than 2 hours

Level III: 2 to 5 hours

Level IV: greater than 5 hours.

RECOMMENDATIONS

The present work sets the standard of management in the outpatient chemotherapy service, for the times that are handled and the type of complexity is in monotherapy or polychemotherapy it is recommended that the schemes that take longer as R-CHOP and AVBD should go in the first hour to the institution for its management and require its prompt establishment, because of the monoclonal antibodies it is recommended in subsequent cycles to reduce the infusion time to the times suggested by the manufacturer, it is necessary to standardize a particular day in the week to administration of monoclonal antibodies.

Although the patient must be individualized, it is necessary to use an institutional chemotherapy protocol due to the infusion time of each chemotherapeutic.

Having fewer nurses in the afternoon is necessary to administer the lowest levels of complexity after noon.

To finalize the need to stratify the levels of complexity of patients treated in outpatient chemotherapy is described as a summary in Table 3, and thus organize the schedule of care according to the level of complexity.

Table 3.- Description of mono drug chemotherapy and polychemotherapy by level of complexity.

Level 1	Level 2 < 2 hours	Level 3 2-5 hours		Level 4 > 5 hours
Trastuzumab SC	Etoposide	Rituximab	Paclitaxel/Gemcitabin	R-CHOP
Octeotride IM	Trastuzumab IV	Cetuximab	Trastuzumab/Ac. Zol.	AVBD
Leuprolide IM	Vincristina	Cisplatino-RT	Docetaxel/ Ac. Zol.	TCH
Asparaginasa IM	Gemcitabina	Paclitaxel	AC	Paclitaxel /Carboplatino
Metotrexate IM	5 Fluorouracil	Trastuzumab IV	Gemcitabin /Cisplatin	TAC
	Heparinization	Bevacizumab		FOLFOX
		Ác. Zol.		
		Carboplatin		
		Docetaxel		

REFERENCE:

1. DeLisle J. Designing an acuity tool for an ambulatory oncology setting. Clin J Oncol Nurs. 2009 Feb;13(1):45–50.
2. Tonges M, Mccann M, Strickler J. Translating caring theory across the continuum from inpatient to ambulatory care. J Nurs Adm. 2014;
3. Wydra EW. The effectiveness of a self-care management interactive multimedia module. Oncol Nurs Forum. 2001;
4. Lee CT, Fitzgerald B, Downey S, Moore M. Models of Care in Outpatient Cancer Centers. Nurs Econ. 2012;
5. Buerhaus P, Donelan K, DesRoches C, Lamkin L, Mallory G. State of the Oncology Nursing Workforce: Problems and Implications For Strengthening the Future. Nurs Econ. 2001;
6. Jacobson JO, Polovich M, McNiff KK, LeFebvre KB, Cummings C, Galioto M, et al. American Society of Clinical Oncology/Oncology Nursing Society chemotherapy administration safety standards. J Clin Oncol. 2009 Nov 10;27(32):5469–75.
7. Lee CT, Fitzgerald B. Model of care and pattern of nursing practice in ambulatory oncology. Can Oncol Nurs J. Pappin Communications; 2013 Apr 3;23(1):19–22.
8. Friese CR, Himes-Ferris L, Frasier MN, McCullagh MC, Griggs JJ. Structures and processes of care in ambulatory oncology settings and nurse-reported exposure to chemotherapy. BMJ Qual Saf. 2012 Sep;21(9):753–9.
9. Green E, Preyra C, Stewart J, McLennan C, Bland R, Dus T, et al. Determining resource intensity weights in ambulatory chemotherapy related to nursing workload. Can Oncol Nurs J. Pappin Communications; 2012 Jun 11;22(2):114–20.
10. Ayala de Calvo LE, Sepulveda-Carrillo GJ. Care needs of cancer patients undergoing ambulatory treatment. Enferm Glob. Universidad de Murcia Servicio de Publicaciones; 2017;16(1):369–83.