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Research Article

Nursing preoperative checklist for safe surgery

Abstract

Background: Safety in the care of patients is a priority in the design of any health system, having direct implications on the quality of care. Assessment of nurses in hospital rooms allows to detect difficulties or problems in preoperative which can endanger the patient's life or the expected result of the surgery. Is there where you must generate protocols that ensure safety for patients, decreasing the maximum errors and comply with the premise made by WHO in 2008: "Safe surgery saves lives".

Objective: The pre-operative checklist of nursing to reduce errors in the admission of patients to operating rooms was applied.

Settings: Hospital de Clínicas José de San Martín, Operating rooms Division.

Population: Inpatients for scheduled surgeries.

Method: Observational, exploratory, prospective longitudinal with retrospective analysis. Application form of modified nursing verification checklist in preoperative stage of scheduled surgeries only between 2 different times.

Results: During 2018, 355 patients in the central operating rooms were operated: 218 were scheduled surgeries and 137 to emergency surgeries. In 218 scheduled surgeries, 61 patients were ambulatory and 158 were inpatients. There was found a total of 183 errors (115%) on 158 surgeries scheduled in a first stage. The most frequent failure in the patient's operating room admission was to arrive dressed in underwear in 59 cases (32.2%), followed by lack cap in 22 (12%) and admission of patients with prosthetic dental in another 21 cases (11.5%). In the second stage, when the validation checklist of nursing form was applied in the preoperative step, the number of errors was reduced to 48%.

Conclusion: Specific actions should promote surgical teams systematically achieve the essential security measures with minimum risks that compromise the life and well-being of the surgical inpatients.

Introduction

Safety in patient care is a priority aspect in the design of any health system, having direct implications for the quality of the care [1,2]. To build a secure system it is necessary analyze and solve the causes of the errors in the assistance. In the year 2008 the World Health Organization (WHO) defined guidelines and standards to reduce errors in health care, launching the campaign "Safe Surgery Saves Lives" [3], whose purpose was to improve the safety of surgeries around the world and defining a set of rules on a checklist, called the WHO safety verification List in surgery linking of a set of items to be verified throughout the surgical procedure, divided into 3 steps: before, during and after the surgery [4].

In the year 2010 in our Hospital was carried out the challenge of implementing the list of surgical verification

after a training program aimed at professionals involved in the surgical procedures [5]. More than eight years have passed since its applying, a thorough re-evaluation of this tool is carried out, beyond the perception of the practice perceived by the professionals. In this reevaluation, it was detected, by the checklist of surgery that many of the errors within the operating room related to the moment of access of the inpatient, the first time of valuation [6,7].

The preparation of the inpatient for the surgical procedure and your transfer to the operating room exemplify the previous step of ingoing the Operation Hall, that is where it is necessary to generate protocols that guarantee safety for the inpatients [8].

The decisive goal is the safety of patients in the immediate preoperative time, identify and recognize their failures to

improve the quality of health care, minimize errors and observe with the premise prepared by WHO in the 2008 year.

Materials and Methods

The Operating Rooms Division, dependent of the Surgery Department, is currently working to assess whether errors persist or there are new errors after the application of the checklist for safe surgery that took place in our Hospital in the year 2010. The design is exploratory observational, with prospective longitudinal intent of retrospective analysis of consecutive programmed operations. A 12-month period was analyzed between September 1, 2015 and August 31, 2016 to be compared with the control group of the year 2010. Now 2915 checklists of scheduled inpatients operated consecutively were reviewed.

The checklist of surgical verification currently used within the operating room is the form proposed by the WHO, but does not envisage the pre-operative period; therefore, during the may 2018 a preliminary analysis was made of surgical patients accessed from the internment rooms, which was called Stage 1 of the pre-operative nursing verification check list.

A control form was collected for the admission of patients to the operating room (Figure 1) as initial exploratory work. It was not notified of this form to nurse of room to that the survey was irrefutable. The return was completed by the operating rooms before the patient accessed the closed unit, where the transfer of patients was performed.

After performing the analysis of the access forms of the patient to the operating room of the preliminary study, a meeting was held between the Operating Theatres Division, the Department of Surgery and the Nursing Directorate where it was agreed to summon all the nurses from inpatient room and the Infectology Division for a general clinical ateneo to explain the results obtained in the month analysis, to jointly elaborate form for the Nurse preoperative checklist as full in figure 2.

In a second stage, the same control was carried out for patients ingoing operating theatres from the internment room with the pre-surgical nursing check list.

The χ_2 statistical test was used to express statistical significance with $p \leq 0,05$.

Results

In May 2018 (Stage 1), 355 patients were operated in the central operating theatres of our hospital, of which 218 corresponded to scheduled surgeries and 137 to emergency surgeries. Of the 218 surgeries scheduled, 61 patients were ambulatory and 158 inpatients which are those analyzed.

With the result of this preliminary data, a chart analyzing the errors detected at the accessed the patients to the operating room (Table 1).

We found a total of 183 (115%) errors on a total of 158


 INGRESO DE PACIENTE A QUIRÓFANO			
Nombre y Apellido:		Servicio:	Fecha:
Historia Clínica N°:			
Urgencia <input type="checkbox"/>	Programado <input type="checkbox"/>	Ambulatorio <input type="checkbox"/>	
INGRESO A QUIRÓFANO	SI	NO	OBSERVACIÓN / COMENTARIO
Horario de ingreso a la planta			
Horario de cirugía, si es programada			
Ayuno			
Gorro			
Botas			
Uñas pintadas			
Ropa interior / Ropa de cama			
Aros cadenas pulseras anillos etc.			
Lentes			
Protesis dental			
Estudios			
Consentimiento informado firmado			
Baño pre-quirúrgico			
Alergias			
¿Sabe de que se opera?			
¿Sabe quién lo opera?			

Figure 1: Check List Pre Quirúrgico De Enfermería.

CHECK LIST PRE QUIRURGICO DE ENFERMERIA																			
																			
DATOS DEL PACIENTE																			
APELLIDO Y NOMBRE:										EDAD:									
HISTORIA CLINICA Nº:						CAMA Nº:				PISO:									
SALA:																			
CONTROL DE SIGNOS VITALES																			
T.A.:				T°:				F.C.:				F.R.:							
SONDA VESICAL				SI		NO		DB T:		SI		NO		SATURACIÓN OXIGENO:					
ASILAMIENTO DE CONTACTO				SI		NO		H.T.A. CRONICA				ALERGICO A:							
PACIENTE REFIERE:				CONSENTIMIENTO INFORMADO				SI				NO							
ACCESO VENOSO				SI		NO		GRUPO SANGUINEO				SI				NO			
MARCAR CON (x) LO QUE CORRESPONDA																			
PREQUIRURGICO INMEDIATO (24 hs previa cirugía)						SI		NO		PREQUIRURGICO INMEDIATO (día de la cirugía)						SI		NO	
AYUNO 12 hs										TONSURADO PREVIO AL BAÑO									
22 hs.-BAÑO TOTAL EN DUCHA C/CLORHEXIDINA JABÓN										05 hs.-BAÑO TOTAL EN DUCHA C/CLORHEXIDINA JABÓN									
22 hs.-BAÑO TOTAL EN CAMA C/6 PAÑOS C/CLORHEXIDINA										05 hs.-BAÑO TOTAL EN CAMA C/ 6 PAÑOS C/ CLORHEXIDINA									
SECADO CON TOALLON PROPIO (NO USAR SABANAS)										SECADO CON TOALLON PROPIO (NO USAR SABANAS)									
ENJUAGUE BUCAL CLORHEXIDINA										ENJUAGUE BUCAL CLORHEXIDINA									
PROTESIS DENTAL										ROPA INTERIOR									
DESODORANTE						COLONIA				DESODORANTE						COLONIA			
UÑAS LIMPIAS / ESMALTE						MAQUILLAJE				AUDIFONOS						LENTES DE CONTACTO			
ANILLOS		SIN AROS		COLGANTES		RELOJ				CAMISOLIN SI NO				GORRO SI NO		BOTAS		BARBIJO	
										SI NO									
CATARSIS POSITIVA										ROPA DE CAMA DESCARTABLE									
CON DEPOSICIÓN INTESTINAL POST BAÑO (REPETIR EL BAÑO)										CON DEPOSICIÓN INTESTINAL POST BAÑO (REPETIR EL BAÑO)									
ELEMENTOS DE VALOR (CELULAR /TABLET/DINERO/Etc...)										PAÑAL LIMPIO									
FAMILIAR QUE RECIBE ELEMENTOS DE VALOR										SI LA ESPERA PARA CIRUGIA ES MAYOR A 8 hs (REPETIR BAÑO)									
NOMBRE:						APELLIDO:				MEDICACIÓN DEL DÍA - CUAL?									
DNI:						FIRMA:				06 HS - CONTROL SIGNOS VITALES									
T.A.:				T°:				F.C.:				F.R.:							
ENFERMERO						NOMBRE		FIRMA		PACIENTE OBT						06 hs. CONTROL DE GLUCEMIA:			
APELLIDO										ENFERMERO						NOMBRE		FIRMA	
										APELLIDO									

Figure 2: Check List Pre Quirurgico De Enfermeria.

surgeries scheduled. The most frequent failure was the admission of inpatients dressed with underwear or bedding in 59 cases (32.2%), followed by a lack of cap or chinstrap in 22(12%) and 21(11,5%) admission of patients with dental prosthesis. It was also analyzed to which service belonged patients who were transferred from the hospital room and later to make a survey and adjustment of the failures.

In Stage 2, carried out after applying the pre-surgical nursing checklist, it was analyzed for a period of one month (August 21 to September 21, 2018) The admission of patients to the operating room using the control form shown in the Figure 2.

A total of 171 surgeries were performed with hospitalization, 126 patients entered the operating room with the verification form and 45 did not.

83 errors (48.5%) were found. The most frequent failure was the admission of patients with underwear or bedding: 30 (36%), followed by a lack of cap, painted fingernails, dentures prosthesis and lack of signature in Informed Consent 7(8.5%) (Table 2).

If the results are analyzed by a statistical test of χ^2 , it is noted that the differences found in Stage 1 (preliminary study) and Stage 2 (already implemented the pre-operative checklist of nursing), can't be due to random and that the found improvement (of 183 errors in 158 operations programmed in Stage 1 to 83 errors of 171 scheduled operations of Stage 2) correspond to the fact of putting into practice processes and procedures that tend to ensure the immediate preoperative when surgical patients range from the hospitalization room to the corresponding operating theatres (Table 1) (Statistical



significance $p \leq 0.00001$ ($x_2 = 25,94127$, $fd = 1$): therefore despite the fact in some services it was detected that the checklist was insufficiently done and that it corresponded with a greater number of errors (Table 3).

Discussion

To build a safe system it is necessary analyze and solve the causes of errors in the assistance of our patients. In the year 2008 the World Health Organization (WHO) launched its campaign "Safe Surgery Saves Lives" [3], with definition of guidelines and standards to reduce errors within the operating rooms. The WHO Checklist Model consists of a set of points to be verified during 3 times: before, during and after the surgical intervention [4].

In our Hospital was implemented the checklist for safe

surgery in the year 2010 [5], and is currently a reevaluation of this tool, which detect that many of the errors found within the operating room center corresponded to patient access time, called the first time of verification checklist [6,7]. It was revealed in this analysis that many of the errors in the admission of the patient to operating room had to do with the preoperative period equivalent to the time of the preparation of the patients to go to the surgical center as being lack of control of vital signs, fast control, presurgical bath, informed consent for the surgery, conditioning for the transportation and admission (cap, boots, surgical dress, not to transfer personal objects), studies and clinical record.

Patients who are going to undergo surgery require adequate pre-operative care, which begins with admission to the internment room and continues until the time of scheduled surgery [1,9].

Table 1: Errors Stage 1.

Fasting	Cap	Clothes	Painted Nail	Bedding	Jewelry	Eyeglasses	Denture	Clinical Studies	Signature Consent Inform	Bathing	Total
				1	1		2	5	1		10
								2	2		4
				8	1		2	1	1	3	16
		1		1	1		2	2	1		8
	2										2
	2	1	5	14	3		2	1	1	1	30
1	2		5	11	1		4	4		3	31
			1	5	2		3	1	1	2	15
	4	2		4	1	1	3	1		2	18
	3	9		7	1		2			6	28
	9			4							13
				2					1	1	4
				1							1
				1			1		1		3
1	22	13	11	59	11	1	21	17	9	18	183

Table 2: Errors Stage 2.

Division	Fasting	Cap	Clothes	Painted Nail	Bedding	Jewelry	Eyeglasses	Denture	Clinical Studies	Inform Consent.	Bathing	Total
Gynecology				1	1			2				4
Urology				1								1
Neurosurgery					1			1		1		3
Traumatology			2	2	3	3	2	2	1	3		18
Cardiac Surgery												0
Gastroent. Surg		1			4				1	2	4	12
Oncolog.Surg		4	1	2	6			1	1		1	16
Thoracic Surg.		1		1	2							4
Vascular Surg.					1			1	1		1	4
Plastic Surg.		1	1		8						4	14
Pediatrics Surg.			1									1
Hemodynamics					1	1				1		3
Phlebology					3							3
Total	0	7	5	7	30	4	2	7	4	7	10	83

Table 3: Errors to Access Operating Room



Hospital De Clínicas
"José De San Martín"

Division	Surgery	Nursing Check List		Scheduled Compliance		Fasting		Cap		Clothes		Painted Nail		Bedding		Jewelry		Eyeglasses		Denture		Clinical Studies		Signature Inform Consent		Bathing		Allergy		Total		
		Elective	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Elective	Errors		
Gynecology	32	32		32		32		32		32		1	31	1	31		32		32	2	30	32		32		2	30	32		4		
Urology	5	5		5		5		5		5		1	4		5		5		5		5		5			5	5		1			
Neuro-surgery	10	10		10		10		10		10		10	1	9		10		10	1	6	10		9	1	10		10	10		3		
Traumatology	23	19	4	21	2	23		23		21	2	2	21	3	20	3	20	2	21	2	21	22	1	20	3	23		23	23		18	
Cardiac Surgery	4	2	2	4		4		4		4		4		4		4		4		4	4		4		4		4	4		0		
Gastroent. Surg.	26	15	11	26		26		25	1	26		2	24	4	22		26		26		26	25	1	24	2	22	4	1	25	26		14
Oncolog. Surg	28	19	9	24	4	18		24	4	27	1	1	27	6	22		28		28	1	27	27	1	28		27	1	3	25	28		15
Thoracic Surg.	8	4	4	7	1	8		7	1	8		8	2	6		8		8		8	8		8		8		2	6	8		3	
Vascular Surg.	13	11	2	11	2	13		13		13		13	1	12		13		13	1	12	12	1	13		12	1	2	11	13		4	
Plastic Surg.	14	4	10	12	2	14		13	1	13	1	1	14	8	6		14		14		14	14		14		10	4	14	14		14	
Pediatrics Surg.	1		1	1		1		1		1		1		1		1		1		1	1		1		1		1	1		1		
Hemodynamics	4	2	2	4		4		4		4		4	1	3	1	3		4		4	4		3	1	4		1	3	4		3	
Phlebology	3	3		3		3		3		3		3	3				3		3		3	3		3		3		3	3		3	
Total Scheduled (Elective) Surgery																											171					
Total Errors																											83					

The preoperative assessment of nursing in the hospitalized rooms allows us to detect difficulties or problems that could cause danger to the patient's life or the expected outcome in the surgical procedures [10], as well as to know the patient's needs at the time of income, not only from the physical but also from the emotional aspect [11,12].

The preparation of the patient for the surgical procedure and the transportation to the operating room represent the previous step of incoming the Operation Hall, that is where it is necessary to generate protocols that guarantee safety for the patients [8,13].

The protocols increase the reliability in the health care of the patient, reducing the human error in the execution of sophisticated procedures [14]. It is essential to detect real or potential threats against the integrity of patients who will be exposed to surgery to anticipate or to allow planning strategies that improve the quality of care [15-17].

With a nursing checklist for the pre-surgical period that saw the evaluation of vital signs and the preparation of patients for the transportation to the operating room of a total 183 errors were found during 158 scheduled surgeries. In other words, there were more errors than scheduled surgeries and the most frequent failure was the admission of patients with underwear

or bedding not adequate 59(32.2%), followed by a lack of cap 22(12%), and admission of patients with denture 21(11.5%).

Some authors attribute this high frequency of errors or failures of patients during the access the operating rooms with underwear or bedding not suitable, because many of them feel ashamed or have modesty in the transportation [14]. That is true, although many times it is also because of lack of control or insufficient information provided by nurses to make effective a standard that must always be fulfilled. This fact was verified in Table 3.

One of the most important measures to reduce surgery-related infectious complications is to pre-enter the patient's bathroom to the operating room. In this study almost 10% of the patients entered the operating room without the pre-surgical bath. In the year 2016, WHO published a recommendation based on evidence, suggesting as a strong recommendation, the pre-intervention bath, either with normal soap or antiseptic [18,19].

It is also worth highlighting the removal of all types of jewelry (rings, bracelets, rings) [20-23], eyeglasses or dentures that are due to some of the norms that are not usually met and require strict controls. In this analysis 11.5% entered with dentures and 6% of patients did with some type of jewelry.

The care of patients in the field of health and in our case in the surgical field is not an easy task, because it depends on a health-system in which individuals interact (professionals and non-professionals of health), technology, infrastructure and environment. The actions of each welfare state will depend on and condition the other, so it is essential to coordinate and communicate among the all members involved [2].

In our hospital condition, the limitation of material resources is often a crucial role because it is difficult to deploy security with inadequate or scarce material resources (lack of bedding, hats, scrubs, hot water in bathrooms, etc.). This implies, if there is not a correct analysis and solutions are proposed, to produce interventions that are scarce controlled by the professionals with the consequent increase of the complications and logically the decrease of the quality in the health-care-assistance, although many times also what is denoted is a lack of internal responsibility and some resistance to change by the all professionals [8].

It must generate the culture of security and communication of errors, and that is where it reveals the lack of communication and culture of notification of the adverse event, the difficulty of accepting the human error by the fear of punishment if notified, the misunderstanding of the people due to lack of culture of error and that failure to report an error can mean an adverse problem or effect for the patient or other professionals [15].

This makes it necessary to adapt to a legal regulation, so it is justified the need for a specific "checklist" for the preoperative in surgical hospitalization units, to verify the proper preparation of the patient before being sent to the surgical center.

Working in depth the clinical safety of health organizations requires knowing current errors which requires a change of thought and the use of appropriate records [8]. The strength of this analysis is to have committed and participated all the staff involved (physicians surgeons, nurses, orderlies, administrative) to ensure quality care to all surgical patients. The limitation (or weakness) is that only, perhaps, it can have value for the institution where this research was developed and also to verify that the world literature on this topic is not very high-volume therefore, it is not known if the found in this analysis is unique or the norm.

Accordingly, and to conclude, specific actions should be promoted so that surgical teams systematically reach essential safety measures, with minimal risks that compromise the life and well-being of surgical patients. To achieve this, we must reinforce the safety practices established, promoting communication and teamwork between clinical and surgical disciplines as well as with all the nurses and administrative staff of the health institution. Only in this way will the surgery be safe at all stages of preoperative, trans and postoperative.

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