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CLINICAL TRIAGE IN THE BLOOD DONATION PROCESS: ANALYSIS ON THE REFUSAL OF DONORS

TRIAGEM CLÍNICA DO PROCESSO DE DOAÇÃO DE SANGUE: ANÁLISE DA RECUSA DOS DOADORES

CRIBADO CLÍNICO EN EL PROCESO DE DONACIÓN DE SANGRE: ANÁLISIS DE LA DENEGACIÓN DE LOS DONADORES

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ABSTRACT

Objective: to identify the main reasons for refusal of candidates for blood donation in the clinical triage. **Method:** this was a retrospective and descriptive study conducted in a public Blood center in Fortaleza-CE. The sample was composed of 6,945 records from candidates who were rejected in the clinical triage in the period from July to December of 2012. The proportions of reasons for refusal were analyzed according to age and gender using the χ^2 test and considering $p < 0.05$ as significant. The data were processed in SPSS 20.0 license no. 10101131007. The research project was approved by the Ethics in Research Committee under CAAE nº 10924012.5.0000.5040. **Results:** a total of 27,522 candidates attended blood donation sites; of these, 20,577 (74.77%) were considered fit and 6,945 (25.23%) were considered unfit in the clinical triage. **Conclusion:** the profile presented in this study reinforces the need and importance of clinical triage in the process that involves blood donation. **Descriptors:** Blood donors; Hemotherapy Service; Donor Selection; Blood Bank.

RESUMO

Objetivo: identificar os principais motivos de recusa dos candidatos à doação de sangue na triagem clínica. **Método:** estudo retrospectivo e descritivo, realizado em um Hemocentro público de Fortaleza-CE. A amostra foi composta pelos 6.945 registros dos candidatos que foram recusados na triagem clínica, no período de julho/dezembro/2012. Analisaram-se as proporções dos motivos de recusa, segundo a faixa etária e sexo, por meio do teste χ^2 , sendo consideradas significantes se $p < 0,05$. Os dados foram processados no SPSS 20.0 licença nº 10101131007. O projeto de pesquisa teve a aprovação do Comitê de Ética em Pesquisa, CAAE nº 10924012.5.0000.5040. **Resultados:** compareceram 27.522 candidatos à doação de sangue; desses, 20.577(74,77%) foram considerados aptos e 6.945(25,23%) inaptos na triagem clínica. **Conclusão:** o perfil ostentado neste estudo reforça a necessidade e a importância da triagem clínica no processo que envolve a doação de sangue. **Descritores:** Doadores de Sangue; Serviço de Hemoterapia; Seleção do Doador; Banco de Sangue.

RESUMEN

Objetivo: identificar las razones principales de denegación de parte de los donadores de sangre en el cribado clínico. **Metodología:** estudio retrospectivo y descriptivo, realizado en un Hemocentro público de Fortaleza-CE. La muestra se compuso de 6.945 expedientes de candidatos denegados en el cribado clínico en el período de julio a diciembre de 2012. Fueron analizadas las proporciones de las razones de denegación según la franja etaria y el sexo, a través del test χ^2 , considerándose significantes si $p < 0,05$. Los datos fueron procesados en el SPSS 20.0 permiso nº 10101131007. El proyecto de investigación obtuvo la aprobación del Comité de Ética en Investigación, CAAE nº 10924012.5.0000.5040. **Resultados:** 27.522 candidatos asistieron a la donación de sangre; de estos, 20.577 (74,77%) fueron considerados aptos y 6.945, inaptos en el cribado clínico. **Conclusión:** el perfil mostrado en este estudio hace hincapié la necesidad y la importancia del cribado clínico en el proceso que involucra la donación de sangre. **Descriptores:** Donadores de Sangre; Servicio de Hemoterapia; Selección de Donador; Banco de Sangre.

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INTRODUCTION

Modern hemotherapy is multiprofessional and presupposes a high level of knowledge, training, and experience in executors from all professional categories.¹ Therefore, the knowledge from the professional who works in hemotherapy services is crucial for appropriate safety and quality in the performance of this practice.

The actions of all professionals working in the field of hematology should aim at complying with the determinations set by the Ministry of Health, guided by the Board of Collegiate Directors Resolution (RDC) number 153 from June 14, 2004, which determines the regulation in hemotherapy.² This regulation predicts the following procedures: collection, processing, testing, storing, transportation, quality control, and use of human blood and its components. These determinations intend to meet the needs of the population through the distribution of safe blood.

Candidates are considered unfit for blood donation during the clinical triage according to two criteria: permanent unfitness and temporary unfitness. The causes of these inabilities are established by the RDC No. 153 Resolution.

Because the clinical triage is an investigative process, it aims at safety in the donation process and is considered an opportunity to provide education and care to donors.³ This process is conducted by nurses under medical supervision with the goals of protecting donors and those who may receive blood. Thus, the triage plays a fundamental role because it is the moment when the candidate is evaluated on personal history and current status aiming at the quality of his blood and protection of donors from reactions that might occur during and after donation.

Because of the care and responsibility involved in the blood donation process, the clinical triage is increasingly judicious in the application of the standardized questionnaire, according to each institution, which follows recommendations established by the Ministry of Health, advocated by the RDC No. 153 Resolution.

With this study, we intend to awaken professionals to suit to the challenges resulting from the evolution of hemotherapy enabling the performance of new studies and the alert about the scarcity of scientific material targeted to this specialty. Therefore, the present study aims:

- To identify the main reasons for refusal of candidates for blood donation in the clinical triage.

METHOD

This was a descriptive, retrospective and with a quantitative approach study performed in a public hemocenter located in the municipality of Fortaleza-Ceará/CE, Brazil.

The study population was composed of 27,522 clinical triage records of candidates for blood donation in the Blood Bank System (SBS), at the Hemocenter of Fortaleza, in the period from July to December of 2012. The sample was composed of 6,945 records of candidates among the study population who were rejected in the clinical triage.

A structured instrument based on the questionnaire used in the clinical triage from the Hematology and Hemotherapy Center of Ceará, which follows the recommendations of RDC No. 153 was used in the study for data collection. The study was conducted during the months of February and March of 2013, after approval by the Research Ethics Committee from the General Hospital in Fortaleza-HGF, under opinion No. 194,170, and through the Certificate of Submission for Ethical Assessment - CAAE n° 10924012.5.0000.5040. The instrument has the following variables: gender, age group, type of donor (first time donor, recurring donor), reason for donating (spontaneous, replacement, autologous), and reasons for refusal during the clinical triage, according to gender and age group.

The data were organized into tables with absolute frequencies and percentages. The 10 most frequent reasons for refusal were classified. The remaining reasons were classified as "other reasons". The proportions of the reasons for refusal were analyzed according to age group and gender through the χ^2 test with $p < 0.05$ considered as significant. The data were processed in SPSS 20.0 license n° 10101131007.

RESULTS AND DISCUSSION

Data from the Ministry of Health website state that the World Health Organization (WHO) recommends that 4% of the population must be regular donors to maintain the stocks needed.⁴ In Brazil, this number is slightly less than 2%. According to data obtained through the Hemocenter of Fortaleza website, approximately 250 donations of blood per day are required to meet the demand of public and private hospitals affiliated with the Unified Health Systems (SUS) from the capital and metropolitan regions. However, only 100

to 120 donations per day occurred on average, reaching approximately 3,430 monthly donations.⁵ It should be noted that there are four hemocenters to meet the blood demands in other municipalities in Ceará distributed in Sobral, Crato, Iguatu, Quixadá, and Juazeiro do Norte/EC, all coordinated by Hemocenter of Fortaleza.

A total of 27,522 candidates attended the Hemocenter of Fortaleza for blood donation in

the period from July to December of 2012. Of these, 20,577 (74.77%) were considered fit and 6,945 (25.23%) were considered unfit by the clinical triage.

The data presented in the following table apply to candidates rejected by the clinical triage and are distributed by profiles of fitness, rejection, first time or recurrent refusal, gender, education, age group, and reasons for donating.

Table 1. Profile of candidates rejected by the clinical triage in the blood donation process. Fortaleza-Ceará, 2013.

Variable	n	%
1. Gender		
Male	4,011	57.75
Female	2,934	42.25
Total	6,945	100.0
2. Rejected		
First time candidate	5,077	73.10
Recurring candidate	1,868	26.90
Total	6,945	100.0
3. Education		
Illiterate	21	0.30
Elementary school	1,268	18.26
High school	3,779	54.41
College	1,857	26.74
Total	6,945	100.0
4. Age group		
16-29 years old	3,763	54.18
30-49 years old	2,737	39.41
50-67 years old	445	6.41
Total	6,945	100.0
5. Reason for donating		
Own initiative	3,312	47.69
Replacement	2,016	29.03
External receiver	1,076	15.49
Source of awareness	434	6.25
Convocation	81	1.17
Talk	11	0.16
Social networks	14	0.20
Autologous	01	0.01
Total	6,945	100.0

Out of the total number of candidates considered unfit, about 4,011 (57.75%) were males and 2,934 (42.25%) females. These data can be justified by the higher demand for the service hemotherapy from males than females. According to the Ministry of Health, this increased demand can be related to the donation ranges established for both genders.

According to Ordinance No. 1,353 from June 13, 2011 and established by the Ministry of Health, the maximum permissible frequency and interval between donations is four annual donations for men and three for women. The minimum interval between two donations should be two months for men and three for women.⁶

Another important factor that contributes to an increased demand from men seeking the hemotherapy services are some of the guaranteed benefits to blood donors such as Law n° 1075 from March 27, 1970, which states that the municipality civil-service

employee or military who proves their donation will be released from work on the donation day.⁷ According to the decree-Law No. 229 from February 28, 1967 amending the consolidated Labor Laws, private companies employees are exempt from work on the donation day only once a year.⁸ Donors who donate twice in the period of twelve months have one ensured right, the exemption of fees in state and municipal exams according to State Law No. 12,559/1995 and municipal law n° 9,242/2007.^{9,10}

Ordinance n° 1,353 from the Ministry of Health (MS), from June 13, 2011, defines individuals who donate for the first time to a particular hemotherapy service as first time donor and those who donate two or more times during the period of 12 months, in the same service as recurrent donors.⁶

The data presented in Table 1 show that among the candidates rejected by the clinical triage, the rejection rate was higher in first

time candidates than in recurring candidates. It is believed that this fact refers to the deficiency of minimum information about the blood donation process received by candidates seeking to donate blood for the first time. This factor influences directly on the clinical triage when a careful interview addressing personal and syndrome related issues is performed reflecting in greater unpreparedness of the candidate and, consequently, higher rates of rejection in the triage.

Table 1 shows that the degree of education indicated that the majority of individuals considered unfit had high school level. While this group obtained further clarification and information, it also showed the highest rate of rejection among the different levels of education. A critical view questions how donor information was being executed because this task is performed using various communication vehicles to inform the greatest number of candidates.

Among the age groups, rejection was the most prevalent between 16 and 29 years old candidates. This demonstrates that the youth population has sought hemotherapy services more often than other age groups. It is believed that these refusals can be explained by the fact that young people are more vulnerable to risk behaviors, therefore, this will influence towards rejection in the triage. Similar data have been found in other studies

in which candidates considered unfit tend to be young and with completed high school education.¹¹

The Ministry of Health (MS) Ordinance nº 1,353 from June 13, 2011 establishes that self-decided donation is the donation by people motivated to maintain the stocks of blood in hemotherapy services, based on an act of altruism, and without having the name of a possible receiver; whereas the replacement donation is the donation from the individual who donates to meet the needs of a patient, which is motivated by people in the service itself, family, and friends, to replenish the stocks of hemo-components in the hemotherapy service.⁶ The analysis of the data presented in Table 1 shows that the largest number of rejected candidates were self-decided donors. These data differ from that in other studies in which most of the unfit candidates were replacement donors.¹²

Table 2 shows the 10 most frequent reasons among 62 reasons for the refusal of a candidate for blood donation in the clinical triage. The variable "Other" encompasses reasons that have occurred less frequently such as recent vaccination, tattoo/piercing/permanent makeup, chronic diseases, inadequate rest, blood pressure above acceptable level, and others.

Table 2. Reasons for the refusal of candidates for blood donation by the clinical triage according to gender. Fortaleza-Ceará, 2013.

Reasons	Males		Females		Total	
	n	%	n	%	n	%
Ht/Hb below acceptable levels *	132	5.39	843	40.96	975	21.63
Recent sexual intercourse **	359	14.66	278	13.51	637	14.13
Sexual intercourse with more than three part/year***	556	22.7	63	3.06	619	13.73
Sexual interc. w/ unknown parts. in the last 12 months****	302	12.33	149	7.24	451	10.01
Use of medicines	247	10.09	196	9.52	443	9.83
Flu state	197	8.04	109	5.3	306	6.79
History of endoscopy or similar	136	5.55	148	7.14	284	6.28
Resid./travel to malaria zone*****	227	9.27	117	5.69	344	7.63
Presence of body sores	168	6.86	63	3.06	231	5.13
Prolonged fasting	125	5.1	93	4.52	218	4.84
Other	1,561	38.93	876	29.85	2,437	35.09
Total	4,010	100.0	2,935	100.0	6,945	100.0

Chi-square test: p < 0.001. Notes: *Hematocrit/Hemoglobin below acceptable levels **Recent sexual intercourse ***Sexual intercourse with more than three partners per year ****Sexual intercourse with unknown partner in the last 12 months *****Residence or travel to malaria zone

Among the 10 reasons cited previously, Hematocrit/Hemoglobin (Ht/Hb) below acceptable levels stood out as the cause of the highest number of refusals with its prevalence associated with the female population. This can be associated with a deficiency in intake of foods rich in iron, which is an essential element in the formation of the hemoglobin chain. The low Ht/Hb

concentration is indicative of anemia due to iron loss; therefore, women tend to have smaller reserves of iron than men due to the menstrual flow.¹³

Still according to Ordinance No. 1,353, the concentration of hemoglobin or hematocrit in the candidate's blood sample must not be less than 12.5 g/dL and less than 38%,

respectively, for women. In men, these limits are 13.0 g/dL and 39%, respectively.⁶

The data from other studies show that Ht/Hb low levels are the most frequent causes of temporary inability to donate blood in females.^{11,14}

According to the current legislation, the blood donation candidate may be refused in the clinical triage for high-risk sexual behavior such as in cases showing signs of exposure to sexually transmitted Infections (STI) and, consequently, greater risks of reinfection, and those who have had sex with one or more casual partners or strangers or their respective sexual partners.⁶

The category of having sexual relationship with more than three partners per year in males corresponded to the greatest reason for rejection. This high frequency can be related to socio-cultural factors that throughout history favored males. Under this influence, current behaviors show that men have more freedom in many ways, among them, related to sexual behaviors. Men become more vulnerable to STDs because of the lack of knowledge and information about prevention and health promotion of safe sexual practices, which is a reason of high relevance in the clinical triage approach.

Another reason for refusal observed in the preceding table was the use of medicines. Ordinance 1,353 establishes that some medicines such as antibiotics, anti-allergic, anticoagulants, anti-hypertensives, and others determine a temporary or permanent unfitness for blood donation.⁶Temporary unfitness disability is defined for donors who are barred from donating blood for a certain

period and definitive unfitness for donors that can never donate blood.⁶ It is known that the current population has been affected by several comorbidities that require the use of pharmacologic therapy for treatment leading directly into increased rejection of candidates in the clinical triage for blood donation.

According to Table 2, residence/travel to malarial zone was an important reason for refusal presented among the refused candidates in the clinical triage. According to the existing Ordinance in non-endemic areas, a candidate who has travelled to endemic areas is deemed unfit. After the period of 30 days and up to 12 months, this candidate will be fit for blood donation, provided that he performs tests for the detection of Plasmodium antigens or plasmodial antigens.⁶ It is important to indicate that the Ceará public blood bank does not provide these tests for blood donors, which explains the refusal of these candidates even within an appropriate time frame for donation.

Prolonged fasting was also referred in Table 2 as being one of the main reasons for unfitness to blood donation. This result can be explained by the lack of information on the part of candidates. Many seek the blood bank to donate on an empty stomach because they think that the donation must be performed in this way. It is unacceptable that the reason mentioned above is still an important cause of refusal because this is basic information that should be known by those who seek the hemocenter.

Table 3. Reasons for refusal of candidates for blood donation in the clinical triage according to age group. Fortaleza-Ceará, 2013.

Reasons	16-29		30-49		50-67		Total	
	n	%	n	%	n	%	n	%
Ht/Hb below acceptable levels *	503	19.87	420	24.42	52	20.23	975	21.63
Recent sexual intercourse **	445	17.58	180	10.47	12	4.67	637	14.13
Sexual intercourse with more than three part/year***	453	17.9	152	8.84	14	5.45	619	13.73
Sexual interc. w/ unkwon parts. in the last 12 months****	240	9.48	192	11.16	19	7.39	451	10.01
Use of medicines	171	6.76	205	11.92	67	26.07	443	9.83
Flu state	185	7.31	110	6.40	11	4.28	306	6.79
History of endoscopy or similar	135	5.33	124	7.21	25	9.73	284	6.30
Resid./travel to malaria zone*****	144	5.69	165	9.59	35	13.62	344	7.63
Presence of body sores	113	4.46	107	6.22	11	4.28	231	5.12
Prolonged fasting	142	5.61	65	3.78	11	4.28	218	4.84
Other	1232	32.74	1015	37.11	190	42.51	243	35.09
Total	3763	100.0	2735	100.0	447	100.0	6945	100.0

Chi-square test: p < 0.001. Notes: *Hematocrit/Hemoglobin below acceptable levels **Recent sexual intercourse ***Sexual intercourse with more than three partners per year ****Sexual intercourse with unknown partner in the last 12 months *****Residence or travel to malaria zone

Among the age groups, HT/HB below acceptable levels was the greatest cause for refusal followed by the sexual relationship with more than three partners per year, and recent sexual intercourse. These reasons almost stood out in candidates aged 16-29 years old. The data show that young people, despite being the most informed age range due to campaigns to this audience in schools and colleges, is also the most refused. This is due to a possible anemia that can be affected by inappropriate eating habits, mainly among women, because they are always on a diet, as well as due to risk behaviors such as engaging in numerous sexual relationships and consumption of alcoholic beverages that are frequent practices in this age group.

Hence, the importance of educational practices with the approach of STD risk-based allowing awareness on the part of these individuals is observed. Thus, it is important to lessen unfitness in this group in the clinical triage ensuring the safety and quality of blood.

CONCLUSION

The profile presented in this study reinforces the need and importance of the clinical triage in the process that involves blood donation. More effective measures should be drawn up by blood donor recruiting services to guide candidates about the prerequisites for donation.

Educational campaigns with further clarification to the young population become necessary based on the high unfitness rate in this group demonstrated in this study. The identification of the reasons for refusal of these individuals showed their greater vulnerability to risk behaviors, especially those related to sexual relationships.

It is believed that blood donor recruiting services could develop strategies to inform a greater number of people through the means of communication used by this population.

The intensification of projects carried out in schools, targeted for blood donation, is also important to provide information that reaches this group at an early age enabling the awareness of the importance of blood donation and leading them to become future donors.

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