



## RESEARCH ARTICLE

# Factors Associated To The Number Of Argon Plasma Sessions For Radiation Proctitis. Short Communication

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## Abstract

**Introduction:** Argon plasma therapy (APC) is an option for chronic hemorrhagic radiation proctitis. Some factors may influence in the number of sessions to resoluteness of bleeding.

**Objective:** To describe the factors associated to the number of therapeutic sessions with argon plasma to achieve resoluteness of bleeding in patients with chronic hemorrhagic radiation proctitis.

**Method:** An observational study was made to describe the factors associated to the number of therapeutic sessions with argon plasma to achieve resoluteness of bleeding in 38 patients with chronic hemorrhagic radiation proctitis treated and followed up in the National Center for Minimal Access Surgery, Havana, Cuba from 2012 to 2015. Values of mean and percentage were calculated; different statistical tests were used to evaluate association between some variables.

**Results:** Only one relationship was found: a higher number of therapeutic sessions was associated with the highest percentage of affected circumferential mucosa ( $p=0.012$ ), which means that the greater circumferential damage will be greater the number of sessions necessary to achieve the resolutivity of the bleeding. There was no evidence to suggest a statistically significant association between the rest of the variables studied and the number of therapeutic sessions of Argon plasma used.

**Conclusions:** APC is a good therapeutic alternative for radiation proctitis. The highest percentage of mucosa circumferentially affected with lesions influences the need to apply a greater number of therapeutic sessions to resoluteness of bleeding.

**Keywords:** Radiation proctitis / Rectal bleeding/ Argon plasma / Endoscopic therapy with argon plasma.

## Introduction

Chronic radiation proctitis appears as a result of a radiotherapy implemented on a pelvic malignancy [1,2]. The argon plasma coagulation (APC) has shown the well-recognized utility due to its effectiveness in the bleeding resolution whit few therapeutic sessions and less complication, easy use and relatively inexpensive [1-5].

The National Center for Minimal Access Surgery is the unique institution in Cuba that achieved a great experience in this therapeutic modality. That is why this group of specialists described the factors associated with the number of APC sessions to achieve resoluteness of bleeding in the chronic radiation proctitis.

## Method

An observational study was made to describe the factors

associated to the number of therapeutic sessions with argon plasma to achieve resoluteness of bleeding in 38 patients with chronic hemorrhagic radiation proctitis treated and followed up in the National Center for Minimal Access Surgery, Havana, Cuba from 2012 to 2015.

To collect the data, schedule was made and there was emptied the information obtained from the interview, the clinical history of patients and Endosorex data base.

The investigation took into account the following variables: the number of radiation sessions, haemoglobin, the intensity

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**Received:** Sept 13, 2018; **Accepted:** Sept 17, 2018; **Published:** Sept 19, 2018

of the rectal bleeding was graded into three groups (based on Chutkan classification): mild bleeding, moderate bleeding, severe bleeding. For the analysis of the endoscopic variables, the extension of the injury (more than 10 cm or  $\leq 10$  cm), the percentage of affected mucosa (more than 50% or  $\leq 50\%$ ) and the friability were collected. According to Saunder's score taking from [6], these parameters were related through an accumulative point which determined the category of endoscopic severity of radiation proctitis into three grades: A. (Mild), B. (Moderate), C. (Serious). The number of sessions needed to achieve resolution of bleeding was analyzed.

### Statistical analysis

The statistic program SPSS v.11.5 for Windows was used to elaborate and process the investigation database. Summary measures were used (Media-range for quantitative variables, and percentages for qualitative variables). The Spearman correlation bivariable test, Kruskal Wallis test and the nonparametric Wilcoxon-Mann-Witney test were used to evaluate the relation between some variables with the number of therapeutic sessions of APC to resoluteness of bleeding. The level of statistic signification  $\alpha = 0.05$  was measured to guarantee 95% of fiability of the statistical tests used.

### Ethic aspects

To carry out the research took into account the voluntary patient through informed consent, as well as to carry out the treatment with Argon Plasma. The authors of investigations proceeded

with the strictest sense of the confidentiality of research data, respecting the ethical standards for the management of patient information.

### Results

Spearman bivariable correlation test was used to evaluate the relation between the haemoglobin and the number of therapeutic sessions with APC needed for the bleeding resolvability. The inverse relation between those variables was well-appreciated. Nevertheless, this correlation is weak, not significant ( $p > 0.05$ ).

After that, Kruskal Wallis test was employed. Researchers did not observe statistically significant association between bleeding grade and the type of proctitis with the number of therapeutic sessions with APC ( $p < 0.05$ ).

Finally, the nonparametric Wilcoxon-Mann-Witney test was made to contrast Injure extension, percentage of affected circumference and friability with the number of therapeutic session's received; It was found out that a significant association was noted between the percentages of affected mucosal and the number of the therapeutic sessions of argon used, giving a result that a major number of sessions was necessary for those patients with more than 50% of affected mucosal circumference. There was no evidence to suggest a statistically significant association between the rest of the variables studied and the number of therapeutic sessions of Argon plasma used (Table 1).

Variables (Correlation)		Number of APC therapeutic sessions				
		Spearman bivariate correlation Test		Kruskal Wallis Test		
Haemoglobin		Number of patients	Mean of APC therapeutic sessions	r	p	
						-0,058
				-0,157	0,345	
Number of radiation sessions		8	2,5	Kruskal Wallis Test		
		12	2,7			
		18	3,7			
Proctitis Grade	A	5	2,8	5,357	0,069	
	B	15	3,0			
	C	18	3,3			
Bleeding Grade	Mild	Number of patients	Mean of APC therapeutic sessions	-	-	
	Moderate			1,083	0,582	
	Severe			-	-	
Endoscopic features	Affected mucosa (circumference %)	13	3,9	Non parametric Wilcoxon-Mann-Whitney Test		
		25	2,6			
	>50 %	18	3,0	-2,526	0,012*	
	$\leq 50\%$	20	3,2	-	-	
	Extension (cm)					
	> 10	19	2,9	-0,062	0,951	
	$\leq 10$	19	3,3			
	Friability					
			No		-1,376	0,169
		yes		-	-	

**Table 1:** Correlation between the number of therapeutic sessions with Argón Plasma Coagulation and some variables of the research.

## Discussion

[7] It used an average of 2 APC sessions and [8]. described a therapeutic response between 2 and 3 sessions, similar to our data, where bleeding resolution was obtained with few APC sessions[9], also reported an average of over 3 sessions; however,[6] reported a mean of 1.5 sessions per patient. APC has become an attractive treatment option, because it is efficient, effective and well tolerated [1-5].

In our study only, a significant association was found. It was between the number of APC sessions and the percentage of affected circumference organ, which means: a higher percentage of affected circumferential mucosa was associated with the highest number of therapeutic sessions to achieve the hemorrhagic resolvability. [9] reported this association too, but they also found association with mucosal friability; however, in this present work a strength of association to this variable was not found. The authors think if the endoscopic affection is high, so more serious could be in the clinic injury expression by radiation and the number of APC sessions to achieve the bleeding resoluteness will be higher one. Similar results are reported by [10].

For other way, [8] evaluated the correlation between the number of APC sessions with the severity of bleeding, the level of haemoglobin and the proctitis extension. They only obtained a significant statistically result according to the extension in centimeters which was not demonstrated in our investigation and they also described that as more extension, the number of APC sessions will be high.

[11] Made a similar study as [8], this group taking into account, as associated variables the number of APC sessions, the injure extension in cm, describing also both group that as more injuries, the possibility to make necessary sessions to eliminate rectum injuries will be high.

## Conclusions

APC is a good therapy for radiation Proctitis with bleeding resolution with few therapeutic sessions. The major percentage of affected circumferential mucosal is associated to the great number of therapeutic sessions to achieve the injure resolvability and its manifestations.

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**Citation:** Montes de Oca Megías E, Morera Pérez M, Noa Pedroso G, Ruiz Torres JF, Brizuela Quintanilla R, et al. (2018) Factors Associated To The Number Of Argon Plasma Sessions For Radiation Proctitis. Short Communication. *Gut Gastroenterol* 1: 001-003.

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