INTRAVENOUS ASCORBIC ACID AND HYDROGEN PEROXIDE IN THE MANAGEMENT OF PATIENTS WITH CHIKUNGUNYA

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ABSTRACT

Chikungunya is a viral illness characterized by severe joint pains, which may persist for months to years. There is no effective treatment for this disease. We treated 56 patients with moderate to severe persistent pains with a single infusion of ascorbic acid ranging from 25-50 grams and hydrogen peroxide (3 cc of a 3% solution) from July to October 2014. Patients were asked about their pain using the Verbal Numerical Rating Scale-11 immediately before and after treatment. The mean Pain Score before and after treatment was 8 and 2 respectively (60%) ($p < 0.001$); and 5 patients (9%) had a Pain Score of 0. The use of intravenous ascorbic acid and hydrogen peroxide resulted in a statistically significant reduction of pain in patients with moderate to severe pain from the Chikungunya virus immediately after treatment.

Index words: ***intravenous, ascorbic, acid, hydrogen, peroxide, chikungunya***

INTRODUCTION

Chikungunya is a viral illness characterized by an acute viral syndrome, typically lasting a few days to a week, followed by a chronic and extremely painful involvement of the joints which can last four months to 5 years in up to 33% of the patients. There is no cure for this disease and the only available treatment is symptomatic and supportive [1-6].

The Puerto Rico Department of Health has reported by November 2014 (10th Month of epidemic) 18,109 suspected cases and 3,385 confirmed cases (total of 21,494) with most cases reported during the month of July. No effective treatment has been reported for this condition [7].

The purpose of this work was to determine whether intravenous vitamin c and hydrogen peroxide were effective against the pain caused by the Chikungunya virus. During the beginning of the present epidemic of Chikungunya in Puerto Rico, we administered intravenous ascorbic acid and hydrogen peroxide to 56 patients complaining of severe pains due to their clinical diagnosis seen at Marcial Integrative Medical Center. This is a review of the results of the pain control in this population.

All 22 patients with influenza who received intravenous 3 cc of 0.3% solution of hydrogen peroxide followed by 20 grams of ascorbic acid, including a suspected case of viral meningo-encephalitis, have responded dramatically within three hours with complete resolution of at least 50% of symptoms, and with no side effects[8].

The use of ascorbic acid as an effective antiviral has been documented as early as 1949 when Frederick R. Klenner, MD, the first doctor to publish in peer reviewed journals, documented the ability of vitamin C to reliably cure many different acute infectious diseases and reliably neutralize any toxin treated, when sufficiently dosed and administered for a long enough period of time [9], the cure of 60 out of patients with polio within 4 days of ascorbic acid administration intramuscularly and orally [10], and the cure of advanced polio and its associated flaccid paralysis with ascorbic acid in 1951 [11].

The purpose of this review was to determine whether the administration of intravenous vitamin C and hydrogen peroxide is associated with a reduction and/or elimination of the chronic persistent pain due to Chikungunya immediately after treatment.

MATERIALS AND METHOD

Study design

All patients came to the Marcial Integrative Medicine Center in San Juan during the 2014 Chikungunya epidemic in Puerto Rico. They all had the initial acute clinical picture, which included all or some of the following symptoms: fevers, chills, rash, weakness, malaise, fatigue, headaches. All patients had the most important clinical feature of persistent, moderate to severe joint pains that interfered significantly with activities of daily living.

They underwent an evaluation that included review of blood-work, history taking, pertinent physical exam and detailed determination of the pain in each joint using the Numeric Rating Scale-11. Each patient had a calculated average Pain Score that was obtained adding all individual areas of pain and dividing among the number of affected sites. All patients were instructed to eat within two hours before the infusion and to snack liberally during the procedure.

Effect of Vitamin C and hydrogen peroxide on Chikungunya patients

Two infusions were injected in 56 patients: 100 cc Normal Saline with 3 cc of a 3% solution of hydrogen peroxide, 500 mg of magnesium chloride and 1000 micrograms of methylcobalamin followed by 500 cc of sterile water or lactated Ringer's solution with 20 to 50 grams of ascorbic acid, B complex (thiamine 100 mg, riboflavin 2mg, pyridoxine 2mg, dexpanthenol 2mg, niacinamide 100 mg), 100 milligrams of thiamine and 100 milligrams of pyridoxine. All were slowly infused intravenously over a 2-4 hour period. Patients were then evaluated after the infusion to determine their overall Pain Score post-treatment using the Verbal Numerical Rating Scale-11. The evaluated variable was the pain intensity from a scale of 0-10 (0 meaning no pain and 10 the worst pain experienced).

Forty-two (42/56=75%) of the patients received 25-30 grams of ascorbic acid. Seven, 6, 5 and 3 patients received 30 grams, 20 grams, 50 grams and 40 grams respectively.

Written informed consent was obtained for each patient indicating that this was not a proven method of treatment for this condition and the possible side effects of it. We have observed from experience that the most common side effect is hypoglycemia that can be prevented in all patients by instructing them to eat before and during the infusion.

Statistical Analysis

We used the SPSS IBM 22 statistics package. The relation between Vitamin C + hydrogen peroxide and Pain score was plotted in two histograms and frequency tables. Comparison of parameters before and after the treatment was performed by Wilcoxon Signed Rank 2 sample test. A p value ≤ 0.001 was considered as statistically significant.

RESULTS

A total of 56 patients were available for analysis. They were 14 males (25%) and 42 females (75%). Patients at the 25 percentile of Pain Score, or who reported lesser intensity pain had a pre-treatment score of 7. This was reported as a 2 Post treatment for a reduction on the Pain Score of 71%. The median pre-treatment Pain Score for the group was 8 and this was reduced to 2 post-treatment for a reduction of 75%. The average Pain Score pre-treatment for at the 75 Percentile, or associated with more severe pain was 8 and to a reduction post-treatment of 4 for a reduction of the Pain Score of 60%.

The range of reduction of the Pain Score was from 60-71% for the most and least affected patients respectively. Five of the patients (5/56) or 9% had a complete response to treatment or complete disappearance of pain after treatment. Three of the patients, or 5%, had no response to treatment (see Table 1).

Pain_Score_Pre

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	4	7.1	7.1	7.1
	5	3	5.4	5.4	12.5
	6	5	8.9	8.9	21.4
	7	11	19.6	19.6	41.1
	8	8	14.3	14.3	55.4
	9	7	12.5	12.5	67.9
	10	18	32.1	32.1	100.0
	Total	56	100.0	100.0	

Pain_Score_Post

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	8.9	8.9	8.9
	1	8	14.3	14.3	23.2
	2	17	30.4	30.4	53.6
	3	8	14.3	14.3	67.9
	4	8	14.3	14.3	82.1
	5	4	7.1	7.1	89.3
	6	3	5.4	5.4	94.6
	7	1	1.8	1.8	96.4
	8	1	1.8	1.8	98.2
	10	1	1.8	1.8	100.0
	Total	56	100.0	100.0	

Table 1 Frequency Table of Pain Score before and after treatment.

No patients discontinued their participation in the study because of adverse reactions to the treatment. No adverse side effects were observed in any patient. The scores of pain showed significant improvement ($p < 0.001$) after the treatment (see Figure 1). The results of the Wilcoxon Signed Rank test show that this treatment improves quality of life in patients with Chikungunya (see Figure 2).

DISCUSSION

Our protocol has shown that the use of intravenous hydrogen peroxide and ascorbic acid is safe and strongly associated with a more than 61% post-infusion reduction of pain in patients affected with Chikungunya virus related arthralgias.

These results are consistent with previous in-vitro research which has shown that ascorbic acid inactivates the polio [21], herpes [22], vaccinia [24], tobacco mosaic [25], bacteriophage [26-29], entero [30], influenza [31] and rabies [32] viruses.

They are also consistent with previous clinical research showing ascorbic acid can resolve polio [9-11,33,34], its associated flaccid paralysis [10], acute hepatitis [35-38], viral encephalitis [39-42], measles (simple and complicated) [43], mumps (simple and complicated) [44], chickenpox [45], influenza [46] and rabies in guinea pigs.

Since there is no effective treatment for severe debilitating Chikungunya related pains [47], and because there is an epidemic in Puerto Rico at the present moment, intravenous vitamin C and hydrogen peroxide may be considered as a safe and viable alternative to manage these patients effectively. Randomized controlled studies need to be done to further explore this question. We are in the process of reviewing our clinical data to determine the longer range apparent effect of this modality on Pain Scores

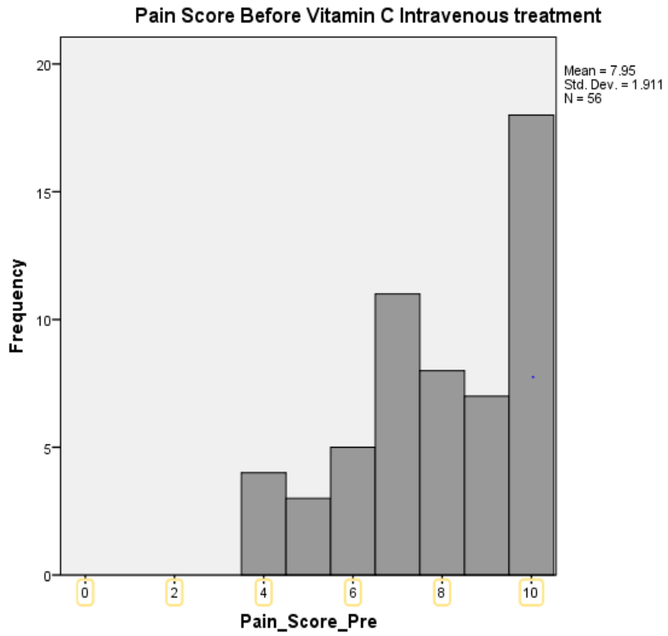

Figure 1A: Histogram of Pain Score before the treatment

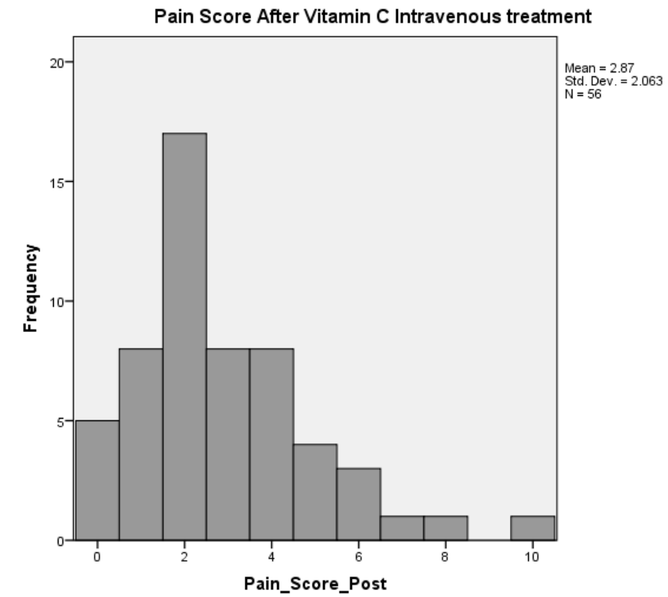

Figure 2B: Histogram of Pain Score after the treatment.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Pain_Score_Pre	56	7.95	1.911	4	10	7.00	8.00	10.00
Pain_Score_Post	56	2.88	2.063	0	10	2.00	2.00	4.00

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Pain_Score_Post - Pain_Score_Pre	Negative Ranks	53[a]	27.00	1431.00
	Positive Ranks	0[b]	.00	.00
	Ties	3[c]		
	Total	56		

a. Pain_Score_Post < Pain_Score_Pre

b. Pain_Score_Post > Pain_Score_Pre

c. Pain_Score_Post = Pain_Score_Pre

Test Statistics[a]

	Pain_Score_Post - Pain_Score_Pre
Z	-6.352[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Figure 2: Results of Wilcoxon Signed Rank test.

and to determine if more infusions and/or higher doses will be more effective.

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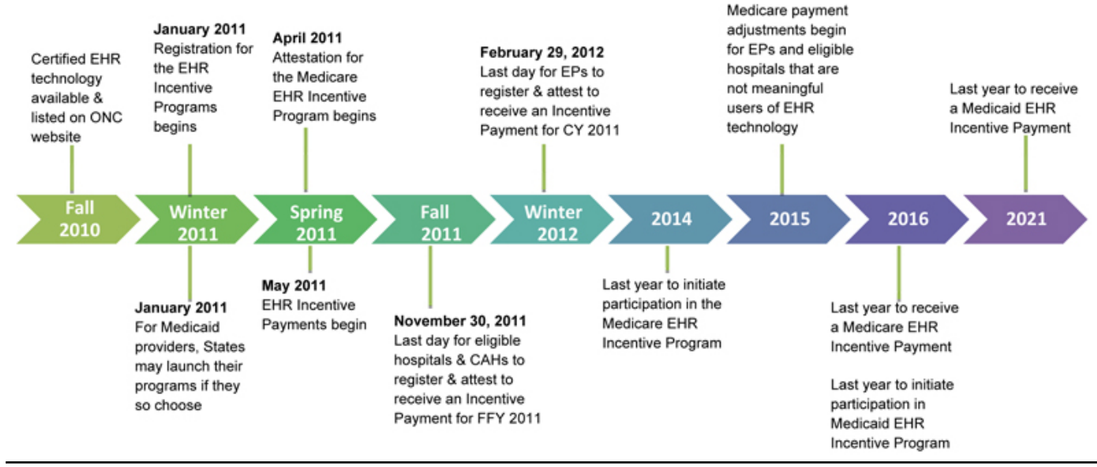
RESUMEN

Chikungunya es una enfermedad viral caracterizada por dolor severo en el área de las coyunturas que puede persistir por meses o años. Manejamos56 pacientes con dolor moderado-severo persistente con una infusión sencilla de ácido ascórbico entre rangos de 25-50 gramos y peróxido de hidrógeno (3 cc de una solución de 3%) entre Julio a Octubre del 2014. A los pacientes se les preguntó acerca de su dolor utilizando la Escala de Valoración Numérica Verbal-11 inmediatamente antes y después del tratamiento. La Puntuación de Dolor promedio antes y después del tratamiento fue 8 y 2 respectivamente (60%) (p < 0.001) y en 5 pacientes (9%) la Puntuación de Dolor bajó a 0. El uso de ácido ascórbico y peróxido de hidrógeno intravenoso está asociado con una reducción estadísticamente significativa de dolor en pacientes con dolor moderado a severo debido al virus del Chikungunya inmediatamente después de la infusión.

Ehr Timeline



QUALITY OF LIFE IN PATIENTS WITH DIFFERENTIATED THYROID CANCER AT THE GENERAL ENDOCRINOLOGY CLINICS OF THE UNIVERSITY HOSPITAL OF PUERTO RICO

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ABSTRACT

Differentiated thyroid cancer (DTC) can compromise the quality of life of patients. Our purpose is to investigate if the quality of life, in a cohort of patients in Puerto Rico, is affected by the diagnosis and/or treatment modalities received for DTC. Methods: This is a cross-sectional study of 75 subjects with DTC. A Spanish version of the University Of Washington Quality Of Life Questionnaire was used, including multiple aspects of physical and social functioning. Descriptive and bivariate analysis between domain scores and variables of interest were performed. Results: 82.7% of the patients reported that their health was the same or better than it was before treatment. The mean composite score obtained was 82.3, reflecting an overall little effect on quality of life. Patients diagnosed with DTC at an age of ≥45 years reported a significantly better score on the pain domain when compared with those diagnosed earlier (p < 0.05). Patient who received >150 mCi of radioiodine had a tendency towards a worse score on the same domain (p=0.05). Conclusions: Our cohort reported an overall minimal effect on the quality of life of patients with DTC. Future treatment strategies should include periodic quality of life evaluations, in order to tailor therapy in this growing population.

Index words: ***quality, life, differentiated, thyroid, cancer, University, Hospital, Puerto Rico***

INTRODUCTION

Thyroid carcinoma is the most common malignancy of the endocrine system [1-4]. Thyroid cancer can be classified according to its histological features [4], with the most common type being the differentiated thyroid carcinoma (DTC). Arising from thyroid follicular epithelial cells, DTC includes papillary carcinoma, follicular carcinoma, and the less frequently found Hurthle cell carcinoma. It is more common in females and is often asymptomatic. The age of diagnosis is an important prognostic factor; thyroid cancer in older persons (more than 45 years of age is associated with a worse prognosis [4,5]. Other important risk factors include a history of head and neck irradiation, male gender, large nodule size, focal tumor fixation or invasion to lymph node and the presence of metastasis, among others [4,5].

The incidence of thyroid cancer is rising worldwide [6]. Within the United States, the incidence of thyroid cancer has increased from 3.6 to 8.7 per 100,000 from 1973 to 2002, representing a 2.4-fold increase [7]. Further studies found that this was mostly due to the diagnosis of papillary thyroid cancer, although its mortality has remained stable during this period [7]. An estimate reported by the American Cancer Society in 2014 resulted in 62,980 new cases of thyroid cancer in the United States [8]. The explanation for this increasing trend is still under investigation; however it is thought that it could be related to new diagnostic modalities, such as the introduction of ultrasound and fine needle aspiration of thyroid gland [7,9]. Data gathered from the Central Cancer Registry of Puerto Rico revealed that the overall incidence rate for thyroid cancer in Puerto Rico has also increased from 3.0 to 7.0 per 100,000 population, with an annual percentage change of 5.3% during