



Evaluation of depression levels in individuals with chronic wounds

Avaliação do nível de depressão em indivíduos com feridas crônicas

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ABSTRACT

Background: The Hyperbaric Oxygen Therapy-HOT, is a non-invasive therapeutic method in which patient breaths 100% oxygen (pure oxygen) through masks, while remain in a pressurized chamber to a pressure higher than atmospheric. Its act as an accelerator of recovery process, by increasing the oxygen saturation in the body that allows to speed up cicatrization and engagement to infection. The aim of this study was to determine the epidemiological profile of hyperbaric oxygen therapy patient of Mato Grosso do Sul state. **Objective:** To demonstrate the Epidemiological Profile of patients treated with the aid of hyperbaric oxygen in the State of Mato Grosso do Sul May 2007 to October 2012. **Methods:** We conducted a restrospective study of HOT patients admitted to Santa Casa de Campo Grande Hospital from May 2007 to October 2012. **Results:** Among 600 patients who underwent HOT, there was a predominance for males (71% - 425 patients); Plastic surgery is the medical speciality which most request HOT associated with conventional treatment for their patients (71% of the total patients), and most of these are due to burn injury (82%). Most of the patients were aged between 31 and 60 years old. (the range with highest prevalence were 31 to 60 years). The mean number of hyperbaric sessions among the burn patients was between 6 and 10 sessions (66.19% of burn patients). **Conclusions:** The majority of our service to patients requiring hyperbaric oxygen therapy was male because of moderate to severe burns, and the Plastic Surgery specialty that most used this tool as adjuvant treatment.

Keywords: Hyperbaric Oxigenation. Therapeutics. Wound Healing.

RESUMO

Introdução: A oxigenoterapia hiperbárica – OHB é uma modalidade terapêutica não invasiva em que o paciente respira oxigênio a 100% (oxigênio puro), com o uso de máscaras, enquanto permanece em uma câmara pressurizada a uma pressão superior à atmosférica. Seu papel é

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atuar como um acelerador do processo de recuperação, por meio do aumento da saturação de oxigênio no organismo, que permite a aceleração nas cicatrizações e no combate a diversas infecções. **Objetivo:** Demonstrar o perfil epidemiológico dos pacientes tratados com auxílio da oxigenioterapia hiperbárica no Estado de Mato Grosso do Sul, de maio 2007 a outubro 2012. **Método:** Realizou-se estudo retrospectivo dos pacientes admitidos na Santa Casa de Campo Grande, que utilizaram oxigenioterapia hiperbárica, de maio de 2007 a outubro de 2012. **Resultados:** Dos 600 pacientes que se submeteram à OHB, predominou o sexo masculino (71% - 425 pacientes); A cirurgia plástica foi a especialidade que mais solicitou OHB associada ao tratamento convencional de seus pacientes (71% do total de pacientes), sendo destes a maioria devido à lesão por queimadura (82%). O intervalo de idade de maior prevalência foi dos 31 aos 60 anos. A média do número de sessões de hiperbárica, dentre os pacientes com queimadura, foi entre 6 e 10 (66,19% do total de queimados). **Conclusões:** A maioria dos pacientes que necessitavam de oxigenioterapia hiperbárica era do sexo masculino devido a queimaduras moderadas a graves, sendo a Cirurgia Plástica a especialidade que mais utilizou esta ferramenta como tratamento adjuvante.

Descritores: Oxigenação Hiperbárica. Tratamento. Cicatrização.

INTRODUCTION

The current state of demographic transition in Brazil and the increases in life expectancy and the number of individuals with chronic conditions has created the need for a broader search for interventions that are focused not only on prevention but also on the treatment of continuous problems that affect human beings, including skin lesions¹.

Chronic wounds are characterized by a diversion in the physiological sequence of wound healing phases and are frequently associated with systemic involvement or disease. In these wounds, the body response is more proliferative (fibroblastic) than exudative and the chronic inflammation process negatively affects cellular repair².

The recurrence rate of chronic wounds is high, ranging from 80 to 90%. Their persistence is debilitating, as they can cause functional disability and dependence. Taking economic and social costs into account, chronic wounds can be considered an important health problem³.

In the United States, more than three billion dollars are spent annually on treatment of chronic wounds; however, this does not include the cost associated with the treatment of emotional issues resulting from the presence of the lesion².

The negative impact on the quality of life of patients with ulcers is due to several interrelated factors, including odor, presence of exudate, pain, reduced mobility, lack of sleep, and increased frequency of dressing changes^{4,5}. For patients with

hard-to-heal chronic wounds, these complications can lead to loss of independence, mood swings, a negative impact on self-esteem and self-image, and isolation from social and family life, potentially leading to anxiety and depression⁶.

Depression is a disease that concerns specialists all over the world. Current statistics indicate that more than 400 million people suffer from depression worldwide. The World Health Organization estimates that, in the next 20 years, depression will move from fourth to second place in the list of expensive and fatal diseases, ranking behind heart disease alone⁷.

Despite these statistics, depression is not a disease of the 21st century. The term "depression" was initially used in 1860 to describe sadness and became commonly used in the mid-19th century⁶⁻⁸. Once depression is treated, there is an improvement in the patient's quality of life, an increase in self-esteem, and a positive impact on social and family life. However, the scientific literature lacks studies into depression involving patients with chronic wounds, even though studies on the wider subject have been conducted in several countries.

Given the relevance of these issues, this study could contribute to current knowledge of depression in patients with chronic wounds and assist healthcare professionals, particularly those who deal with this condition. Thus, the objective of this study was to evaluate the symptom severity and levels of depression in patients with chronic wounds.

METHODS

This was an exploratory, descriptive, and analytical study.

The sample comprised 73 patients with chronic wounds, recruited from the general population, including 25 patients with venous ulcers, 30 with pressure ulcers, and 18 diabetic patients with foot ulcers. They were all seen at the outpatient wound clinic of a hospital located in the interior of São Paulo state.

There were 97 patients registered at the outpatient clinic, including 30 with venous ulcers, 42 with pressure ulcers, and 25 diabetic patients with foot ulcers.

The inclusion criteria used were as follows: 18 years or older and suffering from venous, pressure, or diabetic foot ulcers. Patients who could not answer the questionnaire during the investigator's evaluation due to physical or mental conditions were excluded from the study.

The data were collected between December 2008 and January 2010. Ethical approval was obtained from the research ethics committee of the Federal University of São Paulo (Protocolo-1611/08). Data collection was performed by the researchers themselves once patients had signed informed consent forms.

The first instrument used was of a sociodemographic nature, containing information regarding gender, age, race, and marital status.

The Beck Depression Inventory was the second instrument used. This inventory, which was developed in the sixties and translated into Portuguese and validated in Brazil⁹, includes 21 categories of symptoms and behaviors typical of depression, including vegetative, social, and cognitive symptoms in addition to measures of humor and irritability^{9,10}.

The following score ranges were used to represent depression severity in this study: no or minimal depression (0–10), mild to moderate depression (11–18), moderate to severe depression (19–29), and severe depression (30–63)^{9,10}.

A non-parametric Kruskal-Wallis test and Chi-square independence test were used for statistical analysis. The significance level was set at 5% ($p < 0.05$) in all statistical analyses.

tween 60 and 75 years, 11 (36.7%) patients with pressure ulcers, and 7 (38.9%) with diabetic foot ulcers were aged between 50 and 59 years. With respect to gender, there was predominance of women, 15 (60.0%) with venous ulcers, 18 (60.0%) with pressure ulcers, and 10 (55.6%) with diabetic with foot ulcers. Among patients with venous ulcers, 21 (87.5%) were white, as were 23 (76.7%) with pressure ulcers, and 16 (88.8%) with diabetic foot ulcers. There were no significant differences between groups with respect to age, race, gender, and marital status.

Results presented in Table 2 show that 13 (52%) patients with venous ulcers exhibited no or minimal depression; 7 (28%) exhibited mild to moderate depression, and 3 (12%) exhibited moderate to severe depression. Sixteen (53.3%) patients with pressure ulcers exhibited mild to moderate depression and five (16.7%) exhibited moderate to severe depression. Ten (55.6%) patients with diabetic foot ulcers exhibited mild to moderate depression and four (22.20%) exhibited no or minimal depression.

According to results shown in Table 3, 25 (100%) patients with venous ulcers reported the following symptoms: lack of satisfaction, pessimism, sense of failure, irritability, indecision, and sleep disorder, while 24 (96%) presented with body image distortion, self-deprecation, and social withdrawal. Thirty (100%) patients with pressure ulcers experienced body image distortion, pessimism, and sense of failure; while 29 (96.66%) reported self-deprecation, social withdrawal, irritability, indecision, sleep disorder, feelings of guilt, and suicidal thoughts.

Among the patients with diabetic foot ulcers, 18 (100%) reported body image distortion, self-deprecation, lack of satisfaction, pessimism, work inhibition, irritability, decreased libido, and feelings of guilt, while 17 (94.44%) experienced social withdrawal, sense of failure, indecision, somatic concern, sleep disorder, and suicidal thoughts.

RESULTS

Results presented in Table 1 show that 11 (44.0%) patients with venous ulcers were aged be-

Table 1. Sociodemographic characteristics of patients with chronic wounds.

Variables	Venous ulcer		Pressure ulcer		Diabetic foot ulcer		p < 0.05
	%	N°	%	N°	%	N°	
Age							0.284
28–39	2	8.00	5	16.70	2	11.10	
40–49	4	16.00	7	23.30	4	22.20	
50–59	8	32.00	11	36.70	7	38.90	
60–75	11	44.00	7	23.30	5	27.80	
Total	25	100.00	30	100.00	18	100.00	
Gender							0.946
Female	15	60.00	18	60.00	10	55.60	
Male	10	40.00	12	40.00	8	44.40	
Total	25	100.00	30	100.00	18	100.00	
Race							0.250
White	21	84.00	23	76.70	16	88.88	
Non-white	4	16.00	7	23.30	2	11.12	
Total	25	100.00	30	100.00	18	100.00	
Marital Status							0.102
Married	4	16.00	1	3.30	3	16.70	
Separated	13	52.00	16	53.30	-	-	
Single	1	4.00	8	26.70	3	16.70	
Widow/widower	7	28.00	5	16.70	12	66.60	
Total	25	100.00	30	100.00	18	100.00	

Table 2. Depression levels of patients with chronic wounds

Classification of depression symptoms	Type of Ulcer					
	Venous Ulcer		Pressure Ulcer		Diabetic Foot Ulcer	
	N	%	N	%	N	%
No depression or minimal depression	13	52.00	6	20.00	4	22.20
Mild to moderate depression	7	28.00	16	53.30	10	55.60
Moderate to severe depression	3	12.00	5	16.70	2	11.10
Severe depression	2	8.00	3	10.00	2	11.10
Total	25	100.00	30	100.00	18	100.00

Table 3. Depression symptoms in patients with chronic wounds.

Occurrence of Depression Symptoms	Type of Ulcer					
	Venous ulcer		Pressure ulcer		Diabetic foot ulcer	
	N	%	N	%	N	%
Body image distortion	24	96.00	30	100.00	18	100.00
Self-deprecation	24	96.00	29	96.66	18	100.00
Social withdrawal	24	96.00	29	96.66	17	94.44
Lack of satisfaction	25	100.00	23	76.66	18	100.00
Pessimism	25	100.00	30	100.00	18	100.00
Work inhibition	22	88.00	24	80.00	18	100.00
Sense of failure	25	100.00	30	100.00	17	94.44
Irritability	25	100.00	29	96.66	18	100.00
Decreased libido	10	40.00	12	40.00	18	100.00
Crying crisis	10	40.00	17	56.66	11	61.11
Indecision	25	100.00	29	96.66	17	94.44
Somatic concern	19	76.00	25	83.33	17	94.44
Appetite loss	7	28.00	13	43.33	15	83.33
Weight loss	1	4.00	10	33.33	3	16.66
Feeling of punishment	7	28.00	20	66.66	5	27.77
Sleep disorder	25	100.00	29	96.66	17	94.44
Feelings of guilt	20	80.00	29	96.66	18	100.00
Suicidal thoughts	22	88.00	29	96.66	17	94.44
Fatigue	10	4.00	8	26.66	4	22.22
Total responses	350	-	445	-	283	-
Total cases	25	1364.00	30	1483.25	18	1577.73

DISCUSSION

The epidemiological profile has changed due to the aging of the population, resulting in the prevalence of nontransmissible chronic diseases, which can potentially limit and compromise quality of life in older adults¹¹.

According to a census conducted in 2000, older adults accounted for 8.6% of the Brazilian population, representing a 1.02% increase relative to the previous census, conducted in 1999. The study refers to individuals aged 50 years and older. The authors stated that patients in this age group who have chronic diseases show higher evidence of depression¹².

In this study, most of the participants were women, aged 60 years and older, and divorced.

In older adults, foot ulcers are associated with physiological alterations that usually affect their ability to perform daily activities. The intensity and frequency of this effect vary and depend on socioeconomic, historical, and cultural conditions pertaining to the affected individual. It is often hard, or even impossible, for these individuals to participate in social, leisure, or family activities due to work absenteeism and an inability to perform daily tasks^{13, 14}.

Several studies¹⁵⁻¹⁷ have indicated that these types of ulcer affect work productivity, which leads to disability retirement, and restrict day-to-day and recreational activities. For many patients with such wounds, the ulcers involve pain, impaired mobility, worsened quality of life, anxiety, and depression.

Depression is a mental disorder that interferes with the individual's physical and psychological functions at both personal and family levels. Women are twice as likely to suffer from depression than men^{18,19}.

During the 90s, a global comparison of several diseases placed depression as the fourth most common specific cause of disability. It has been estimated that by the year 2020, depression will be the second and first leading cause of disability in developed and developing countries, respectively²⁰.

Patients with chronic diseases, particularly those with chronic wounds, experience changes in their lifestyles and often suffer important losses at a social, economic, or personal level. The healing process is very slow or limited, resulting in residual disabilities or frequent recurrence of disease. Thus, patients with chronic diseases face constant anxiety, as they are always concerned about the possibility of negative outcomes related to their diseases^{21, 22}.

Once the individual acquires/develops an ulcer, he or she experiences social withdrawal, as the presence of pain, odor, and exudate associated with the wound may induce anxiety and depression.

Salomé et al.¹⁴ and Serafim & Cosa²¹ concluded that ulcers in lower limbs limit performance of daily activities, interfere with social and family life, cause pain, and consequently lead to mental suffering and anxiety. Pain is an unpleasant emotional and sensorial experience. Both chronic pain and depression considerably affect quality of life, in addition to considerably increasing the cost of health care²².

In an integrative review, the authors concluded that the pain from venous ulcers affects the patient's daily life, representing one of the main causes of decreased quality of life, particularly as it relates to loss of sense of humor, sleep disorders, social and family withdrawal, and impaired physical mobility²³. Results of this study showed that the majority of the patients presented with moderate to severe depression.

Costa et al.²² analyzed the association between depressive symptoms and anxiety, in relation to chronic pain, and investigated the impact of these symptoms on health and quality of life on participants. They concluded that 70% of the participants displayed signs of anxiety and 60% exhibited depressive symptoms.

A review of the literature indicated that approximately 20–30% of diabetics are depressed. Depression can be a risk factor during the development of diabetes, leading to worsened symptoms and affecting patient's self-care. If depression is not properly treated in these patients, it can advance with high recurrence rates^{24,25}.

Using the Beck Depression Inventory in a study performed with 50 patients, the authors concluded that 41 patients experienced some degree of depression, while 32 (64%) exhibited moderate depression, showing symptoms of self-deprecation, sadness, body image distortion, and decreased libido²⁶.

Other authors have concluded that these wounds cause physical and psychological alterations that lead to anatomical deformities, which often result in feelings of fear, anxiety, anguish, aggressive behavior, decreased quality of life, low self-esteem, and body image distortion and potentially result in depression²⁷⁻³⁰.

This research reinforces the need for redirecting attention to the health of patients with chronic wounds, in order to identify changes in self-esteem, self-image, anxiety, and depression as part of routine activities provided by health care services, including hospitals, outpatient clinics, and family

health programs. Patients who live with such wounds in their daily lives should have their care needs addressed and their caretakers should be aware of these patients' disabilities.

As researchers, we believe that it is important to develop future studies to compare the results of the Beck Depression Inventory with the following variables: sociodemographic factors, comorbidities and past history of psychiatric disease of the individual and his or her family. It is also necessary to evaluate correlations between the results from the Beck Depression Inventory and those from the subjective well-being assessment. We consider this a limitation of our study.

CONCLUSIONS

Based on the results obtained with use of the Beck Depression Inventory, it can be concluded that patients with ulcers (venous, pressure, and diabetic foot ulcers) exhibited mild-to-moderate to moderate-to-severe symptoms of depression. As the findings relate to symptom severity, the most important symptoms were as follows: lack of satisfaction, pessimism, sense of failure, self-deprecation, social withdrawal, and suicidal thoughts.

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