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CLINICAL CHARACTERISTICS OF ADOLESCENTS HOSPITALIZED WITH SYSTEMIC LUPUS ERYTHEMATOSUS

CARACTERÍSTICAS CLÍNICAS DE ADOLESCENTES HOSPITALIZADOS COM LÚPUS ERITEMATOSO SISTÊMICO

CARACTERÍSTICAS CLÍNICAS DE ADOLESCENTES HOSPITALIZADOS CON LUPUS ERITEMATOSO SISTÉMICO

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ABSTRACT

Objectives: to describe the clinical characteristics of hospitalized adolescents with Systemic Lupus Erythematosus undergoing glucocorticoid pulse therapy. **Methods:** Descriptive, documentary, quantitative study carried out in the ward of a university hospital in the State of Rio de Janeiro. Sample composed of 12 medical records of adolescents, totaling 23 pulse therapy and 68 infusions/day, performed between August/2020 to June/2021. Data were analyzed using descriptive statistics. **Results:** Regarding the time of medical diagnosis, 50% were diagnosed between 0 and 6 months, and 58.3% had never undergone pulse therapy prior to hospitalization, 95.7% of pulse therapies were due to complications from Lupus. Regarding the reasons for hospitalization, clinical investigation (34.8%), treatment (26%) and disease activation (21.7%) stand out. Regarding blood pressure variation, no amplitude of variation of systolic and diastolic pressures was observed. **Conclusion:** nursing care for adolescents with lupus should be guided by singularities and clinical assessment.

Descriptors: Nursin; Nursing Care; Pulse Therapy, Drug; Adrenal Cortex Hormones; Adolescent Health.

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RESUMO

Objetivos: descrever as características clínicas de adolescentes hospitalizados com Lúpus Eritematoso Sistêmico submetidos à pulsoterapia com glicocorticoide. **Métodos:** Estudo descritivo, documental, quantitativo, realizado na enfermaria de um hospital universitário no Estado do Rio de Janeiro. Amostra composta por 12 prontuários de adolescentes, totalizando 23 pulsoterapia e 68 infusões/dia, realizadas entre agosto/2020 a junho/2021. Os dados foram analisados através de estatística descritiva. **Resultados**: Quanto ao tempo de diagnóstico médico, 50% foram diagnosticados entre 0 e 6 meses, e 58,3% nunca haviam realizado pulsoterapia anterior à internação, 95,7% das pulsoterapias foram em decorrência das complicações oriundas do Lúpus. Quanto aos motivos de internação destacam-se investigação clínica (34,8%), tratamento (26%) e ativação da doença (21,7%). Em relação a variação da pressão arterial não foi observado amplitude de variação das pressões sistólica e diastólica. **Conclusão:** a assistência de enfermagem ao adolescente com lúpus deve ser pautada nas singularidades e na avaliação clínica.

Descritores: Enfermagem; Cuidados de enfermagem; Pulsoterapia; Corticosteroide; Saúde do Adolescente.

RESUMEN

Objetivos: describir las características clínicas de adolescentes hospitalizados con lupus eritematoso sistémico en tratamiento con pulsos de glucocorticoides. **Métodos:** Estudio descriptivo, documental, cuantitativo, realizado en la sala de un hospital universitario del Estado de Río de Janeiro. Muestra compuesta por 12 historias clínicas de adolescentes, totalizando 23 pulsoterapia y 68 infusiones/día, realizadas entre agosto/2020 a junio/2021. Los datos fueron analizados utilizando estadística descriptiva. **Resultados:** En cuanto al tiempo de diagnóstico médico, el 50% fueron diagnosticados entre los 0 y 6 meses, y el 58,3% nunca habían realizado pulsoterapia previo a la hospitalización, el 95,7% de las pulsoterapias fueron por complicaciones del Lupus. En cuanto a los motivos de hospitalización, se destacan investigación clínica (34,8%), tratamiento (26%) y activación de la enfermedad (21,7%). En cuanto a la variación de la presión arterial, no se observó amplitud de variación de las presiones sistólica y diastólica. **Conclusión:** el cuidado de enfermería al adolescente con lupus debe estar orientado por las singularidades y la evaluación clínica.

Descriptores: Enfermería; Cuidado de enfermera; Terapia de pulso; Corticosteroide; Salud del adolescente

INTRODUCTION

Systemic Lupus Erythematosus (SLE) is an autoimmune disease of unknown and incurable etiology. It is a chronic inflammatory disease in which the individual's own antibodies attack multiple systems of the body.[1] It is characterized by periods of remission and exacerbation of clinical manifestations, that is, there are periods in which the disease is active, with the appearance of signs and symptoms, and other periods in which the disease is in remission.[2]

Juvenile Systemic Lupus Erythematosus (JSLE) manifests itself in children and adolescents when the typical changes of the phase begin to appear. Therefore, adolescents with a chronic disease of the magnitude of JSLE tend to have difficulty adhering to treatment when

there is no direct supervision from caregivers.[3]

The diagnosis of SLE in individuals under 17 years of age has a worse prognosis[3], meaning that the earlier the pathology develops, the more serious the complications will be throughout life.

Regarding pharmacological treatment, it is worth noting that it is based on disease control and, among the therapies instituted, there is intravenous drug therapy with high doses of corticosteroids, which may or may not be associated with antineoplastic immunosuppressants. The main corticosteroid used in pulse therapy is methylprednisolone, with its dose being above 1 gram diluted in 0.9% saline solution or 5% glucose solution.[2]

Pulse therapy causes some clinical manifestations due to the high dose of glucocorticoid and approximately 70% of patients using pulse therapy with corticosteroids present adverse effects such as increased blood pressure, edema, loss of electrolytes, emetic episodes, immunosuppression and glycemic changes, among others.[2]

In view of this, several nursing care measures are recommended, such as monitoring vital signs before, during and after the infusion of corticosteroid pulse therapy, in addition to checking capillary blood glucose and serum potassium, in order to identify possible adverse effects of the medication.[4,5]

Furthermore, with a view to providing safe and quality care, it is important to use management tools such as the establishment of Nursing Protocols aimed at care before, during and after the infusion of glucocorticoid pulse therapy.[5] It is necessary to understand that the nurse has a fundamental role in the clinical evaluation of these patients, and in establishing evidence-based nursing interventions.

Therefore, the study aims to: describe the clinical characteristics of hospitalized adolescents with SLE undergoing glucocorticoid pulse therapy.

METHOD

Descriptive, documentary, quantitative study, carried out in a ward specialized in adolescent health in aUniversity hospital in the State of Rio de Janeiro. The service is responsible for comprehensive health care for adolescents between the ages of 12 and 18.

The sample consisted of 12 medical records of hospitalized adolescents who underwent glucocorticoid pulse therapy during hospitalizations, totaling 23 pulse therapies, which corresponded to 68 infusions/day, from August 2020 to June 2021.The following inclusion criteria were established: medical records of adolescents

with a medical diagnosis of SLE hospitalized and receiving treatment with glucocorticoids greater than 1 gram during hospitalization. Exclusion criteria: medical records of adolescents with a medical diagnosis of SLE hospitalized and receiving treatment with cyclophosphamide and other medications during hospitalization and medical records of adolescents hospitalized undergoing diagnostic investigation of SLE during hospitalization. It is noteworthy that 100% of the sample was collected during the period outlined in the data collection.

Data collection took place from May to August 2021. The data collection instrument developed by the authors presented the following clinical variables: number of infusions,reason for hospitalization, complications during hospitalization, time of diagnosis, prescribed therapies, complications during infusion and blood pressure values before, during and after infusion.

It is worth noting that the service has a Pulse Therapy Infusion Protocol, characterized by three sequential infusions, called Day 1 (D1), Day 2 (D2) and Day 3 (D3), where the determined infusion time is 2 hours, with some clinical parameters being evaluated, before, during and after the infusion, such as, for example, checking blood pressure before the infusion, in the 1st hour of infusion and in the 2nd hour of infusion and 4 hours after the end of the infusion.

The data were tabulated using Microsoft Office Excel 2010® and analyzed using simple descriptive statistics, with a description of relative and absolute frequencies.

The study is in accordance with the Resolutions of the National Health Council (CNS) nº 466/12 and nº 510/16, having been approved by the Research Ethics Committee (CEP), under Opinion nº: CAAE: 16427419.3.0000.5259 and nº. 3.443.800.

RESULTS

The sample consisted of 12 medical records of hospitalized adolescents undergoing glyco-corticoid therapy, totaling 23 pulse therapy and 68 infusions/day. Due to adverse reaction D3 of a patient was suspended.

Regarding the time of medical diagnosis: 50% (n=6) of adolescents who underwent the first pulsoterapia were diagnosed between 0 and 6 months; 8.3% (n=1) were diagnosed in the period >6 months to 1 year; 25% (n=3) over 1 year and, 16.7% (n=2) of adolescents for more than 2 years.

Regarding the previous pulse therapy 58.3% (n=7) of adolescents had never performed pulse therapy and 41.7% (n=5)

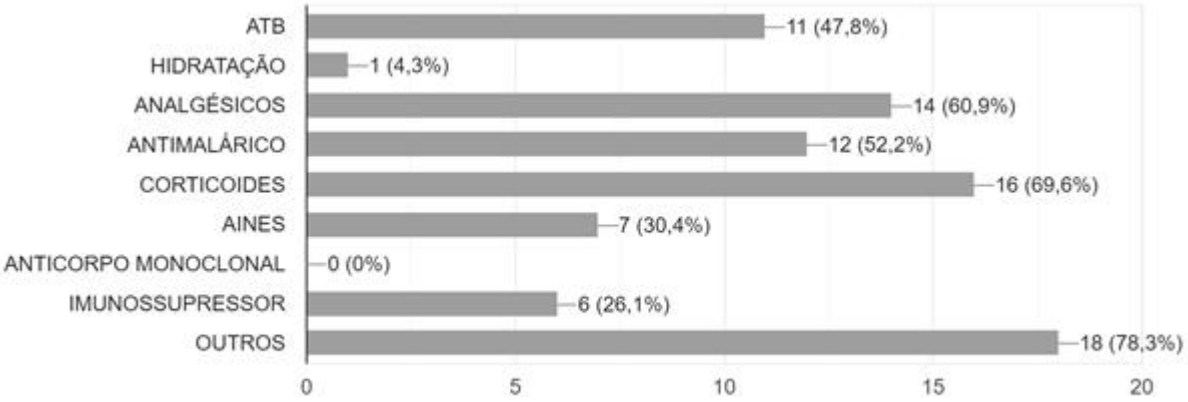
had already done pulse therapy before admission.

In relation to the 23 pulse therapy performed, 95.7% (n=22) were due to complications from SLE. Among the complications in hospitalizations, we highlight: cardiovascular alterations 78.3% (n=18), cutaneous lesions 34.8% (n=8); lupus nephritis 21.7% (n=5), malar rash 17.4% (n=4), pulmonary alterations 17.4% (n=4), infection 13% (n=3) and other 30.4% (n=7).

As to the reasons for hospitalization, we highlight: clinical investigation 34.8% (n=8), treatment 26% (n=6), activation of disease 21.7% (n=5), cardiac and renal complications 8.7% (n=2); fever and weakness 4.4% (n=1) and other complications of the disease 4.4% (n=1).

For other therapies prescribed during pulse therapy with glucocorticoids, the data are presented in Graph 1:

Graph 1: Therapies prescribed during glucocorticoid pulse therapy, Rio de Janeiro, RJ, 2021 (N=23)*



Caption: *the same adolescent received more than one therapy. ATB = antibiotic; NSAIDs: non-steroidal anti-inflammatory drug

Source: Authors, 2021.

Also, regarding the intercurrences during pulse therapy: on the first and second days of pulse therapy (D1 and D2) there were no interdependencies, and on the third day of infusion a teenager presented headache corresponding (4.3%).

Regarding the blood pressure before, during and after the infusion of pulse therapy, the data described in Table 1 are noteworthy.

Table 1: Systolic (SBP) and diastolic (DBP) blood pressure at different measurement times before, during and after pulse therapy infusion (data in mean and range of variation). Rio de Janeiro, RJ, 2021 (N=68)

Variable	D1*			D2*			D3**		
	Average	Min	Max	Average	Min	Max	Average	Min	Max
SBP (mmHg)									
Before infusion	134.7	110	190	133.1	100	164	130.5	110	160
30 min of infusion	127.3	100	148	132.6	100	152	127.3	102	141
60 min of infusion	132.2	106	151	136.7	110	165	133.9	108	160
1h 30 min of infusion	128.1	100	149	131.2	100	146	128.9	103	155
2h of infusion	129.1	100	147	135.7	110	166	129.6	110	140
4 h after infusion	133.7	112	177	131.7	110	160	127.3	108	148
DBP (mmHg)									
Before infusion	86.65	68	114	82.86	60	100	86.36	59	121
30 min of infusion	85.52	65	105	88.39	63	109	82.27	67	97
60 min of infusion	88.69	75	109	88.91	70	110	81.86	60	110
1h 30 min of infusion	89	67	106	85.13	60	106	81.54	68	106
2h of infusion	87.30	60	104	88.34	70	112	82.04	60	98
4h after infusion	85.39	70	106	83.04	58	112	79.54	60	99

Legend: SBP = Systolic blood pressure; DBP = Diastolic blood pressure; D1 and D2 = characterized by 23 infusions each; D3 = characterized by 22 infusions
Source: Authors, 2021.

DISCUSSION

Among the descriptive analyses, it was observed that the majority of adolescents had recent diagnoses (50%) between 0 and 6 months. In addition, the majority had never undergone previous pulse therapy (58.3%).

SLE is a chronic inflammatory disease that affects several organs and systems. It is also an important disorder of the immune system that causes immunologically mediated lesions. Because it presents several clinical manifestations, the diagnosis sometimes becomes more complex.[6,7,8] In addition, SLE in adolescents is a disease that usually presents after the onset of puberty and is more common in females than in males.[9]

It presents as a multisystemic disease that is difficult to diagnose, especially in the first evaluation, which makes diagnostic definition difficult.[7] The diagnosis of SLE is made based on clinical and laboratory findings following the classification criteria proposed by the American College of Rheumatology (ACR), updated in 2019 with the support of the European League Against Rheumatism (EULAR) with the aim of formulating a simple and accurate method for classifying the disease.[10]

It is important to note that during treatment, it is important to receive guidance on the disease and its main symptoms, as well as regular monitoring by health professionals.[8] SLE presents with several complications in organs and systems, which justifies pharmacological treatment based on a range of medications, such as glucocorticoids (GC), antimalarials and immunosuppressants, which require care and monitoring due to their side effects.[11,8]

In the study, 95.7% (n=22) of the pulse therapy performed were due to complications arising from SLE.

Authors show that among the complications of SLE, the following stand out: hematological, cardiopulmonary and renal impairment, and neuropsychiatric manifestations.[12] Regarding clinical manifestations, the most notable are skin lesions, arthritis, serosal inflammation, nephritis, neuropsychiatric, hematological and vascular alterations.[13] The study showed that the main complications resulting from SLE during hospitalization were: cardiovascular, cutaneous and mucous lesions and lupus nephritis.

A study shows that approximately 50% of lupus patients have some alteration in the cardiovascular system, which is the main cause of morbidity and mortality in patients with SLE. The activity of the disease favors the appearance of this type of complication due to systemic inflammatory activity, endothelial dysfunction, predisposition to thrombosis and even the use of glucocorticoids.[14]

However, a study indicates that adolescents have a higher frequency of developing lupus nephritis when compared to adults. On the other hand, adults have a higher frequency of inflammation in the pleura and pericardium.[15]

The study identified that the main reasons for hospitalization were clinical investigation (34.8%), followed by treatment (26%) and disease activation (21.7%). SLE is an autoimmune disease, which has periods of exacerbation and remission.[9] The use of methylprednisolone promotes remission of the autoimmune disease, focusing on the immunosuppression of the immune system.[16]

However, it is worth highlighting that the pharmacological treatment of SLE must be individualized, based on the organs or

systems affected and the severity of the disease. If the treatment is ineffective, other drugs should be included, with a view to effective therapeutic management.[17]

Among the established therapies, pulse therapy with methylprednisolone is indicated mainly for situations such as nephritis, encephalitis, transverse myelitis and other serious manifestations.[18]

However, the therapy implemented may cause side effects and adverse effects, which will require clinical monitoring. In the infusion of methylprednisolone, a series of considerations must be observed for a better risk/benefit ratio, because despite the various therapeutic properties of the medication, clinical manifestations may occur such as: skin rash, temporary sleep disturbance, mood changes, sinus bradycardia, hyperglycemia and arterial hypertension.[4,5,19]

The importance of implementing safety protocols in the preparation and administration of medications is highlighted, with a view to avoiding medication errors and ensuring patient safety.[20]

As the authors point out, maintaining blood pressure control is part of nursing care for lupus patients. Hence the implementation of a protocol for evaluating clinical parameters, since patients who use glucocorticoids tend to have a 20% greater chance of developing high blood pressure.[4,5,8,19]

Furthermore, systemic arterial hypertension is a predisposing factor for atherosclerosis, which increases the possibility of developing cardiovascular diseases.[14] However, in the study, no significant range of variation in systolic and diastolic blood pressure was observed throughout the infusions.

Therefore, the importance of nursing care based on the peculiarities of the subjects and clinical evaluation is reinforced, in order to allow safe and quality nursing practice.

Among the limitations of the study, the COVID-19 pandemic stands out, which interfered with the organization of the unit and the reduction in the number of clinical hospitalization beds. In addition, the sample was small, which does not allow the generalization of the results.

CONCLUSIONS

The study allowed us to assess the clinical characteristics of adolescents with SLE who underwent glucocorticoid pulse therapy in a specialized adolescent health service. Twenty-three pulse therapies and 68 infusions were performed. 50% of the adolescents were diagnosed between 0 and 6 months of age, and most had never undergone pulse therapy before hospitalization. A percentage of 95.7% of the pulse therapies were due to

complications arising from SLE, such as cardiovascular, mucous membrane and skin alterations and lupus nephritis. The main reasons for hospitalization were for clinical investigation, treatment and activation of the disease. Regarding the evaluation of blood pressure, no significant amplitude of variation in systolic and diastolic pressures was observed.

The importance of nursing care for adolescents with Lupus and its complications is highlighted, as the nursing team is at the forefront of the entire process, paying attention to the execution of protocols and possible adverse events during and after infusion.

Therefore, the present study allowed us to describe the clinical characteristics of adolescents with SLE, highlighting the importance of clinical surveillance, with the purpose of minimizing possible complications. Based on this study, it is suggested that research be carried out to evaluate the clinical parameters during and after pulse therapy infusion.

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