

## Craniofacial and neurological manifestations in patients with Guillain-Barré Syndrome.

### Manifestaciones neurológicas craneofaciales en pacientes con Síndrome de Guillain-Barré.

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**Abstract: Introducción:** Among the broad range of symptoms of the Guillain-Barré Syndrome (GBS), patients can present craniofacial manifestations. Consequently, the participation of the dental surgeon in the evaluation of the stomatognathic system using a multidisciplinary approach model is very important. **Objective:** To identify the craniofacial and neurological manifestations of the Guillain-Barré Syndrome in patients from three hospitals in the district of Lambayeque, Peru, in 2019. **Material and Methods:** A descriptive, prospective, and cross-sectional study was carried out in 59 patients diagnosed with GBS by means of a clinical evaluation carried out by previously calibrated neurologists ( $k=0.911$ ). Additionally, an oral evaluation of the oral hygiene index, the periodontal status, and the oral pH was carried out. Data were processed using frequency distribution tables. **Results:** 44.07% of the patients presented at least one functional alteration, such as unilateral limitation for facial expressions (25.42%), dysphagia (18.64%), alteration in phonation (11.86%), and loss of the sense of taste (6.78%), showing involvement of the corresponding cranial nerves. In addition, unfavorable conditions of oral hygiene and acid pH were observed in some cases, which proved adverse for the periodontal structures of the patients. **Conclusion:** The study found craniofacial manifestations of GBS, such as cases of unilateral facial palsy, dysphagia, difficulty in phonation, and loss of the sense of taste, due to the alteration of the cranial nerves that command these functions. In addition, poor oral hygiene, and the presence of acidic pH in some patients created an adverse environment for the integrity of the periodontal structures.

**Keywords:** Guillain-Barré syndrome; neurological manifestations; cranial nerves; facial paralysis; deglutition disorders; phonation.

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**Resumen: Introducción:** El Síndrome de Guillain-Barré (SGB) dentro de su amplia sintomatología puede presentar manifestaciones craneofaciales, por lo que resulta importante la participación del cirujano dentista en la evaluación del sistema estomatognático desde un modelo de abordaje multidisciplinario. **Objetivo:** Identificar las manifestaciones neurológicas craneofaciales del Síndrome de Guillain-Barré en pacientes de tres establecimientos de salud de Lambayeque, Perú en el año 2019. **Materiales y Metodos:** Se realizó un estudio descriptivo, prospectivo y transversal, con 59 pacientes diagnosticados con SGB, mediante una evaluación clínica realizada por médicos neurólogos previamente

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calibrados ( $k=0,911$ ). Adicionalmente se realizó una evaluación bucodental del índice de higiene oral, del estado periodontal y del pH bucal, siendo procesados los datos mediante tablas de distribución de frecuencias. **Resultados:** El 44,07% de pacientes presentaron por lo menos una alteración funcional, identificando limitación unilateral para expresiones faciales (25.42%), disfagia (18.64%), alteración en la fonación (11.86%) y pérdida del sentido del gusto (6.78%), evidenciando compromiso de los pares craneales correspondientes. Además se observaron condiciones desfavorables de higiene oral y de pH ácido en algunos casos, que resultaron adversas para las estructuras periodontales

de los pacientes. **Conclusión:** Fueron encontradas manifestaciones craneofaciales del SGB, identificando casos con parálisis facial unilateral, disfagia, dificultad para la fonación y pérdida del sentido del gusto, debido a la alteración de los pares craneales que comandan esas funciones. Además las condiciones desfavorables de higiene oral y la presencia de pH ácido en algunos casos, propiciaron un ambiente adverso para la integridad de las estructuras periodontales.

**Palabra Clave:** *síndrome de Guillain-Barré; manifestaciones neurológicas; nervios craneales; parálisis facial; trastornos de deglución; fonación.*

## INTRODUCTION.

The Guillain-Barré syndrome (GBS) is defined as a group of neuropathies caused by the immune system which produce alterations on the structures that form the peripheral nervous system.<sup>1,2</sup> This is due to the action of molecular mimicry between microbial antigens and nerve fibers epitopes, which are recognized by the host own antibodies.<sup>3</sup> GBS corresponds to an acute inflammatory neurological pathology, which shows a rapid evolution and may have fatal consequences due to respiratory or cardiac complications.<sup>1,3</sup> Epidemiological data show that GBS is the most frequent cause of generalized acute flaccid paralysis worldwide;<sup>2,3</sup> however its occurrence is relatively rare, ranging between 10 to 20 cases per million inhabitants annually.<sup>4</sup>

In Peru, the incidence per 100 thousand inhabitants was 0.91 in 2017.<sup>5</sup> The last epidemiological outbreak was reported in the Lambayeque region between the months of March and November 2019.<sup>6</sup> Despite its low incidence, it is a high-impact disease because it usually causes temporary disability, prolonged hospitalizations in intensive care and high-cost procedures.<sup>7</sup> In addition to this, the little knowledge about the disease evolution that was observed especially in the first cases reported in Lambayeque and, subsequently, the absence of experiences in other medical areas such as dentistry, made it more difficult to treat this complex pathology.

GBS occurs in all ages but has a higher incidence in adults.<sup>2,7</sup> In most cases it is preceded by a gastrointestinal or respiratory infection, of bacterial or viral origin, although there have been cases with a history of immunizations, hematological or malignant diseases.<sup>5,8</sup>

Its clinical manifestations are characterized by weakness and neuromuscular paralysis, lack of sensitivity and areflexia,<sup>9,10</sup> accompanied by tingling, numbness, pain, tachycardia, cardiac arrhythmia, and respiratory failure,<sup>8,10</sup> in addition to albumin-cytological dissociation in cerebrospinal fluid.<sup>10,11</sup> Motor paralysis and muscle weakness manifest themselves with distal onset and proximal progress, generally bilateral and of ascending fashion, affecting the lower extremities, trunk, upper limbs, respiratory and cervical muscles, and may eventually affect the cranial nerves.<sup>8,10</sup>

Regarding the craniofacial manifestations of GBS, authors such as Casares *et al.*,<sup>10</sup> and Lupiáñez *et al.*,<sup>12</sup> point out the occurrence of alterations in cranial nerves such as the facial nerve, showing unilateral or bilateral facial palsy. Casares *et al.*,<sup>10</sup> additionally report disturbance of the swallowing function, resulting in the involvement of the trigeminal, facial, glossopharyngeal and vagus nerves, as indicated by Suárez *et al.*,<sup>13</sup>

In this regard, Cancino *et al.*,<sup>14</sup> also report swallowing complications and alterations in phonation due to compromise of the glossopharyngeal and vagus nerves. Seeing the impact at the level of different body regions, dental surgeons should not remain indifferent to the multidisciplinary approach needed to treat GBS. They must participate actively in the diagnosis, control, and surveillance of the structures of the stomatognathic system.

Their involvement is essential, considering that these patients present physical inactivity, have difficulty to perform proper oral hygiene and, therefore, have a high probability of accumulating bacterial plaque, or having

periodontal structures with high risk of progressive alterations, among other oral complications.

Considering the different aspects mentioned above, the present study aims to identify the craniofacial manifestations of the Guillain-Barré Syndrome in patients from three hospitals in the district of Lambayeque, Perú, in 2019.

## MATERIALS AND METHODS.

The study had a descriptive, prospective, and cross-sectional design. Its main objective was the identification of craniofacial manifestations in a group of patients diagnosed with Guillain-Barré Syndrome, who were treated at three hospitals in Lambayeque, Perú, in 2019.

The study population consisted of 64 patients treated at the Neurology and Emergency Units, Intensive Care Unit, Intermediate Care Unit and Outpatient Clinics of these three healthcare centers: Hospital Docente Las Mercedes, the Regional Hospital of Lambayeque, and Hospital National Almanzor Aguinaga Asenjo. As the population was known and accessible, a census sample represented by the entire study population was used, except for five patients who were not considered in the study as they did not comply with the selection criteria, resulting in a final sample of 59 patients.

Male and female patients between the ages of 12 and 85 years were included in the study. They received hospital care between the months of March and December of 2019. These patients were evaluated with the aim of identifying craniofacial and oral cavity manifestations. Patients who did not give their informed consent or who did not have the consent of their parents or guardians were excluded from the study. Patients with systemic diseases whose consequences could have produced additional craniofacial manifestations were also excluded; however, there were no patients in this category.

The corresponding permits were requested for having access to the health establishments. Authorization to obtain information from the primary sources through direct communication with the health professionals who cared for the patients was also granted. These care providers performed and provided a clinical evaluation complementary to the patients' clinical history. They also recorded and described in a more specific way the signs and symptoms of the craniofacial manifestations evidenced by functional limitations and cranial nerve alterations caused by GBS.

In this way, in the first phase, there was a semiological and pathological description performed by three neurologists, one in each hospital, who were previously calibrated ( $k=0.911$ ). An average time of thirty-five minutes per patient for the corresponding clinical examination was used. Findings were registered in detail in an observation form previously validated by expert judgment, pilot test and statistical reliability, showing reasonably high internal consistency with a Cronbach's alpha of ( $\alpha=0.887$ ). Complementary auxiliary tests were not performed, and it was not possible to evaluate the functionality of the salivary glands.

The craniofacial and neurological clinical evaluation, carried out by specialist physicians, consisted of corroborating the absence of neuromuscular reflexes, a decrease in neuronal conduction speed by 60%, a block limiting nerve conduction by 80%, gestures affected by neuronal motor involvement with signs of facial asymmetry, and presence of relatively mild autonomic and sensory alterations.

Additionally, in a second phase, an oral evaluation procedure was carried out by two dentists, who, in addition to contributing to the diagnosis of the oral manifestations of GBS, recorded information on the oral hygiene index, the community periodontal index of treatment needs, and an estimate of oral pH, carried out with a previous calibration process ( $k=0.866$ ;  $k=0.813$ ;  $k=0.931$ ; respectively). The simplified oral hygiene index was applied according to Greene and Vermillion criteria,<sup>15,16</sup> registering values of soft and calcified bacterial plaque, obtaining averages whose results were placed in the following categories: good, with values ranging between 0.0 and 1.2, fair, between 1.3 and 3.0, and poor, with values between 3.1 and 6.0. The community periodontal index of treatment needs was applied by evaluating the six corresponding sextants, obtaining results with the use of the WHO calibrated periodontal probe (with measurement marks 11.5mm-8.5mm-5.5mm-3.5mm and blunt end), so that the values were placed according to the codes and categorized into: code 0, with the presence of healthy tissues; code 1, with bleeding during or after probing; code 2, with calculus or other plaque retentive factors such as crowns; code 3, with pathological pocket depths of 4 to 5 millimeters; and code 4, with pockets depths greater than 5 millimeters.

Oral pH was recorded with a Hanna's Checker Plus Hi 98100 pH-meter with electrode, demonstrating

reliable calibrated functionality, which allowed to obtain quick and accurate readings from pH 0.0 to 14.0 with a resolution of pH 0.1.

Its liquid crystal display and a two-point calibration, easy to perform, accessible and versatile design allowed to classify the results into three categories: acidic pH, when the value obtained was less than 5.6; adequate pH, when the value was between 5.6 to 7.9, which corresponds to the normal pH range in the oral cavity; and alkaline pH, when the value was higher than 7.9.

The principles of the Declaration of Helsinki were followed in this study. The research was also authorized by the Bioethics Commission and the Research Unit of Universidad San Martín de Porres by Rectoral Resolution No. 518-2017-CU-R-USMP.

For the processing, analysis and interpretation of the data, summations, percentages, and averages were performed, calculating the percentage results from frequency distribution tables with their respective graphs, using version 24 of the SPSS statistical program.

## RESULTS.

Concerning the place of origin of the patients, it was observed that the cases of the Lambayeque Region accounted for the highest percentage, with 61.02% of the total population, followed by the patients of the Cajamarca Region with 35.59%, and only two patients from Lima and the Piura Region, respectively. (Table 2)

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Regarding craniofacial manifestations, it was determined that 44.07% of patients with GBS presented at least one alteration, there were found cases with unilateral facial palsy in 25.42% of the sample, and difficulty for adequate swallowing in 18,64%.

Alteration of phonation was also found in 11.86%, loss of the sense of taste in 6.78%; only 3.39% of the

**Table 1.** Frequency of GBS cases according to age and gender of patients treated in hospitals in Lambayeque in 2019.

Age groups	Female		Male		Subtotal	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0 - 19 years	3	5.08	3	5.08	6	10.17
20 - 39 years	4	6.78	10	16.95	14	23.73
40 - 59 years	7	11.86	14	23.73	21	35.59
60 - 79 years	4	6.78	11	18.64	15	25.42
80 or older	0	0	3	5.08	3	5.08
<b>Total</b>	<b>18</b>	<b>30.51</b>	<b>41</b>	<b>69.49</b>	<b>59</b>	<b>100</b>

Source: Registry of GBS patients treated at Las Mercedes, Lambayeque Regional, and Almanzor Aguinaga Asenjo hospitals, between March and December 2019. GBS: Guillain-Barré syndrome.

**Table 2.** Frequency and percentage of GBS cases according to the place of origin of the patients treated in hospitals in Lambayeque in 2019.

Place of origin	Frequency	Percentage
Lambayeque	36	61.02
Cajamarca	21	35.59
Otros	2	3.39
<b>Total</b>	<b>59</b>	<b>100</b>

Source: Registry of GBS patients treated at Las Mercedes, Lambayeque Regional, and Almanzor Aguinaga Asenjo hospitals, between March and December 2019. GBS: Guillain-Barré syndrome.

**Table 3.** Frequency and percentage of cases with affected functions at the craniofacial level, in patients with GBS treated at the hospitals in Lambayeque in 2019.

Affected Functions	Total cases GBS		Identified cases	
	N	Percentage	frequency	Percentage
Facial paralysis	59	100	15	25.42
Deglutition disorders	59	100	11	18.64
Alteration in phonation	59	100	7	11.86
Taste alteration	59	100	4	6.78
Limited eye movements	59	100	2	3.39
No function affected	59	100	33	55.93

**Source:** Registry of GBS patients treated at Las Mercedes, Lambayeque Regional, and Almanzor Aguinaga Asenjo hospitals, between March and December 2019. GBS: Guillain-Barré syndrome.

**Table 4.** Frequency and percentage of cases with affected functions at the craniofacial level, in patients with GBS treated at the hospitals in Lambayeque in 2019.

Cranial Pairs Affected	Total cases GBS		Identified cases	
	N	Percentage	frequency	Percentage
Trigeminal Nerve (V)	59	100	7	11.86
Facial Nerve (VII)	59	100	17	28.81
Glossopharyngeal Nerve (IX)	59	100	13	19.15
Vagus Nerve (X)	59	100	11	18.64
Hypoglossal Nerve (XII)	59	100	12	20.34
Another nerve	59	100	2	3.39
None	59	100	31	52.54

**Source:** Registry of GBS patients treated at Las Mercedes, Lambayeque Regional, and Almanzor Aguinaga Asenjo hospitals, between March and December 2019. GBS: Guillain-Barré syndrome.

**Table 5.** Frequency and percentage of GBS cases according to oral evaluation in patients treated at hospitals in Lambayeque in 2019.

Oral evaluation		Cases GBS	
		N	Percentage
Oral Hygiene Index	Good	12	20.34
	Fair	21	35.59
	Poor	26	44.07
	<b>Total</b>	<b>59</b>	<b>100</b>
Community Periodontal Index of Treatment Needs	Code 0	7	11.86
	Code 1	17	28.81
	Code 2	22	37.29
	Code 3	13	22.03
	Code 4	0	0
	<b>Total</b>	<b>59</b>	<b>100</b>
Oral pH	Acidic	17	28.81
	Adequate	36	61.02
	Alkaline	6	10.17
	<b>Total</b>	<b>59</b>	<b>100</b>

**Source:** Registry of GBS patients treated at Las Mercedes, Lambayeque Regional, and Almanzor Aguinaga Asenjo hospitals, between March and December 2019. GBS: Guillain-Barré syndrome.

cases presented limited eye movements. (Table 3)

In other results, 47.46% of the patients had at least one cranial nerve affected; 28.81% of cases presented alteration in the motor function of the facial nerve evidenced by limitation of gestural expressions; alteration of the facial nerve as well as the functional limitation of the hypoglossal nerves with 20.34%; glossopharyngeal with 19.15%; vagus with 18.64%, and trigeminal showed deglutition disturbances.

In the case of the facial and glossopharyngeal nerves, their deficiency indicated alteration in the sense of taste; there were also identified limitations of the vagus and hypoglossal cranial nerves for phonation, while 11.86% of patients presented motor alterations of the trigeminal nerve but without altering the chewing function.

Only 3.39% presented difficulty in eye movements due to the alteration of the common ocular motor nerve. On the other hand, the evaluation of the cranial nerves was not sufficient to reveal alterations in the salivary glands. (Table 4)

The oral evaluation showed a poor oral hygiene index in 44.07% of patients with GBS, 35.59% with a fair index, and only 20.34% with a good index. Oral pH records indicated adequate pH in 61.02% of patients, 28.81% had an acidic pH, and only 10.17% of patients had alkaline oral pH. The community periodontal index of treatment needs showed that 37.29% of the patients had calculus or other plaque retentive factors, 28.81% with bleeding during or after probing, 22.03% with pathological pockets depths from 4 to 5 millimeters, and 11.86% with healthy periodontal structures. Based on these findings, it can be interpreted that the unfavorable conditions of oral hygiene and the acidic pH present in some cases could strengthen and prolong the cycle of bacterial plaque and calculus formation in a continuous and harmful process for the oral health of patients. So, GBS patients are considered as a vulnerable group from the dental perspective. (Table 5)

## DISCUSSION.

According to Rebolledo *et al.*,<sup>17</sup> as GBS has an acute evolution with chronic sequelae, it requires early evaluations that may help to identify its clinical manifestations, which may present uncertain variability, in a timely manner. It is essential to monitor its evolution and prevent major consequences. It is important to create the best conditions for patients to recover and achieve a

better quality of life. In this regard, Freitas *et al.*,<sup>18</sup> report that an adequate quality of life in cases of GBS requires a multi-disciplinary approach, with optimal nutritional support and progressive recovery through rehabilitation therapies that may contribute to reestablishing the lost physiological capacities.

In accordance with a multidisciplinary approach model, the contribution of different disciplines is essential to develop evaluation and comprehensive intervention protocols. From this holistic approach, the present study aims to generate information and experience from a dental perspective, aimed at confirming the presence of craniofacial manifestations, that may help in the identification of the oral symptoms of GBS. In this context, González *et al.*,<sup>19</sup> point out the relevant role of the dental surgeon, whose experience and field of action can contribute to assess alterations in the anatomy and physiology of the structures of the stomatognathic system in cases of GBS.

In the present study it was found that 44.07% of patients with GBS presented at least one functional alteration at the craniofacial level, mainly unilateral limitation for facial expressions, dysphagia, alteration in phonation and loss of the sense of taste; and only two cases with limited eye movements. In relation to these results, authors such as Casares *et al.*,<sup>10</sup> and Cancino *et al.*,<sup>14</sup> have been able to demonstrate disturbances in deglutition and in the articulation of words in patients diagnosed with this syndrome.

Casares *et al.*,<sup>10</sup> also state that 60% of GBS cases are accompanied by unilateral, and in some cases bilateral, facial paralysis. Similarly, Galeas *et al.*,<sup>20</sup> warn that 50% of GBS cases present unilateral or bilateral facial paralysis, and some patients may present oculomotor weakness. In another study, Lupiáñez *et al.*,<sup>12</sup> identified signs of bilateral facial paralysis, as well as difficulty in occlusion of the eyelids, mouth closure and pronunciation of some phonemes. However, García *et al.*,<sup>21</sup> disagree and report that bilateral facial paralysis is a rare manifestation, accounting for only between 0.6 and 1.6% of the different series of facial paralysis. In coincidence, Vargas *et al.*,<sup>22</sup> also describe bilateral facial paralysis or facial diplegia, as a condition that barely represents between 0.3 and 2% of the cases with facial paralysis. As already mentioned, in the present study no cases of facial diplegia were found.

In other results, 47.46% of all patients had at least one affected nerve, showing alterations in the motor function

of the facial nerve. The hypoglossal, glossopharyngeal, vagus, and trigeminal nerves were also affected and, to a lesser extent, the common oculomotor nerve.

Faced with these findings, Ballón and Campos,<sup>9</sup> in a study carried out in 16 patients treated at the Regional Hospital of Lambayeque, reported alterations in the cranial nerves. In relation to this, Diaz *et al.*,<sup>23</sup> as an introduction to a case report of a patient with GBS at the Hospital Belén de Trujillo, Peru, describe the occurrence of alterations in the lower cranial nerves. In another experience, Piñolo *et al.*,<sup>11</sup> in a study conducted in 30 patients treated at the Hospital Clínico de Zaragoza, reported 21% of GBS cases with cranial nerve involvement. On their part, Villarreal *et al.*,<sup>24</sup> in a case follow-up in Barranquilla, report that cranial nerve involvement occurs in 25% of the cases, mentioning cases of facial paresis, weakness in the muscles of swallowing, phonation, and chewing. The difference in percentages of these last two studies, of 21 and 25%, respectively, compared to 47.46% of the current study, could be due to the greater sensitivity and specificity to identify craniofacial clinical manifestations.

Some authors, such as Lupiáñez *et al.*,<sup>12</sup> report that the alteration of the facial nerve can appear in up to 60% of patients with GBS, while Vargas *et al.*,<sup>22</sup> report that the involvement of the facial nerve occurs between 27% and 50% of the cases evaluated. As can be seen, 28.81% of the cases with facial paralysis in the current study coincide more with Vargas *et al.*,<sup>22</sup> than with Lupiáñez *et al.*,<sup>12</sup> On the other hand, Cancino *et al.*,<sup>14</sup> report alteration of the facial nerve but linked to a functional limitation of the hypoglossal, glossopharyngeal, vagus and trigeminal nerves, evidenced in the loss of the swallowing function.

These authors also indicate alterations in the glossopharyngeal and vagus nerves, which explain the limitations in phonation. They also report that trigeminal neuralgia has been identified among the possible causes, with intense pain in the upper lip and nose. Along these lines, Salazaret *et al.*,<sup>25</sup> consider pain an underestimated manifestation in patients with GBS. In complementary contributions, Casares *et al.*,<sup>10</sup> mention other affected cranial nerves such as the common oculomotor, trochlear and abducent nerves, which limit oculomotor functions.

Regarding the findings of the oral evaluation, the poor oral hygiene conditions in 44.07% of the patients and the presence of acidic pH in some cases led to the accumulation of bacterial plaque, as a harmful

agent that predisposes the periodontal tissues to the presence of calculus and pathological periodontal pocket depths in patients with GBS. The reason for evaluating these three aspects was justified because this study included inactive patients with difficulty in carrying out their personal hygiene, resulting in poor oral hygiene, contributing, as mentioned, to alterations in the periodontal structures.

In relation to other oral manifestations, authors such as Lupiáñez *et al.*,<sup>12</sup> report difficulty in mouth closure and in the pronunciation of some phonemes. According to references cited by Cancino *et al.*,<sup>14</sup> trigeminal neuralgia has been reported, with intense discomfort when chewing or brushing the teeth. For their part, Villarreal *et al.*,<sup>24</sup> in relation to the alteration of the trigeminal nerve, report weakness in chewing muscles. Thus, the important role played by the dental surgeon in the oral evaluation of these patients is evident. In addition to contributing to the diagnosis of oral alterations caused by GBS, dentists can also participate in the comprehensive management of associated manifestations, as confirmed by González *et al.*,<sup>19</sup> who verified that the motor functions of the facial nerve related to the oral apparatus are affected by GBS, which is decisive for the dental management of these patients.

In this way, one of the scopes of this study lies in expanding the GBS research experiences from a dental perspective, promoting the contribution of skills and practices in the field of oral-maxillo-facial semiology and physiology, in such a way that a care protocol can be built that can be integrated within the framework of a holistic approach. Continuing with the alterations and degree of involvement of the facial nerve, authors such as Piñol *et al.*,<sup>11</sup> García *et al.*,<sup>21</sup> as well as Milian *et al.*,<sup>26</sup> point out that there is an atypical presentation of GBS, in which the condition starts with a facial diplegia, even before the involvement of the peripheral nerve. Even though in the study carried out by Ballón *et al.*,<sup>9</sup> in Lambayeque, and in the findings of the present study there were no indications of atypical presentation of bilateral peripheral facial palsy, the dental surgeon was able to identify these unusual cases.

Consequently, dentists must use their skills for the diagnosis and management of these patients. This is even more relevant, if it is considered that the early diagnosis of GBS is essential to reduce the morbidity and mortality of the disease. In this regard, researchers such as Cibils *et al.*,<sup>27</sup> and Del Sol<sup>28</sup> stress the relevance of

identifying clinical manifestations in a timely manner to anticipate the risk of having more severe consequences.

On the other hand, considering that most cases of GBS require a prolonged time of rehabilitation, authors such as Villarreal *et al.*,<sup>24</sup> even speak of a residual disability with exposure to sequelae, for which it is likely that these patients spend a long time with difficulty in performing oral hygiene, a situation that must be addressed by the dental surgeon in coordination with the team of health professionals. They must take the responsibility of educating patients, family members or guardians with the aim of improving oral health care.

Precisely based on the aspects just mentioned, the impact and strength of this study lies in reiterating the contribution of dentistry to assess and identify craniofacial manifestations, specifically in the stomatognathic system in those patients affected by GBS. However, its limitation lies in the lack of similar experiences in the district of Lambayeque. Researchers should promote the continuity and development of this line of research, as well as formulate policies consistent with the implementation of epidemiological surveillance in the specific cases and locations.

The strict inclusion criteria in the present study guaranteed the control of possible biases, so that the identification of craniofacial manifestations of GBS is attributed exclusively to the results obtained from the cases studied, ruling out the intervention of other factors.

## CONCLUSION.

Fifty-nine patients with craniofacial manifestations of GBS were identified; 44.07% of the patients presented at least one functional alteration, corresponding mainly to unilateral facial palsy, dysphagia, difficulty in phonation, and loss of the sense of taste, due to the alteration of the cranial nerves that command these functions.

In addition, the unfavorable conditions of oral hygiene and the presence of acidic pH in some cases, favored an adverse and harmful environment for the integrity of the periodontal structures, making GBS patients a vulnerable group from the dental perspective. Future studies should evaluate the alteration on the salivary glands and the motor capacity of the tongue, among other aspects that were not included in this study.

**Conflict of interests:** The authors declare no conflicts of interest.

**Ethics approval:** Study approved by the Bioethics Commission and the Research Unit of Universidad San Martín de Porres by Rectoral Resolution No. 518-2017-CU-R-USMP.

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