Guillain barre syndrome guidelines 2020

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Most patients had a typical clinical form of GBS predominantly with a demyelinating electrophysiological subtype. Mechanical ventilation was needed in eight (44%) Patients. Two (11%) the patients died. Published cases of GBS associated with COVID-19 report sensorymotor, predominantly demyelinating GBS with a typical clinical presentation. Clinical features and the course of the disease seem similar to those observed in GBS associated with other etymology. These results should be interpreted with caution, as so far only 18 cases have been reported in a heterogeneously. Guillain-Barre Syndrome (GBS) is a rare inflammatory disease of the peripheral nervous system with an increase in incidence with age. GBS is thought to be caused by prior infections with specific pathogens. The typical onset is characterized by weakness and sensory signs, starting with the legs and progressing to the arms and cranial muscles. Loss of deep tendon reflexes, dystounomic symptoms and pain are also common. Despite the heterogeneous clinical presentation, the diagnosis is based on the patient's history and neurological examination, supported by electrophysiological studies showing motor or sensory motor polyradiculoneropathy and cerebrosrose fluid (CSF), showing elevated protein levels in normal cell counting. The incidence of GBS may increase during outbreaks of infectious diseases that cause the disease. According to Lu et al., a new type of coronavirus (SARS-CoV-2, severe acute respiratory coronavirus 2 or COVID-19) was discovered in Wuhan City, Hubei Province of China in December 2019. This new virus has enter the cell through fusion with the angiotensin-conversion receptor enzyme 2 (ACE2). The most recognizable feature of COVID-19 is the cause of severe respiratory complications, complications, depends to a large extent on the overall health of the infected patient. Age, the patient's major comorbidities and the state of the immune system also play an important role in the severity of the disease. Many signs and symptoms are associated with infection such as fever, shortness of breath, cough, headache and diarrhea. Neurological manifestations are also increasingly reported, and several cases of GBS in infected SARS-CoV-2 patients have been described. This study aims to summarize these cases in a single review to characterize GBS associated with SARS-CoV-2 infection. This review follows guidelines set by preferred reporting elements for systematic reviews and meta-analysis (PRISMA). The authors developed and conducted a comprehensive literary search of pubMed, Embase and Cochrane databases. The keywords used to search are displayed in Table 1, which shows the basic strategy of the study. Initial search results have been verified, checking only the name and abstract; then, full-bodied articles from the result of the list were evaluated for inclusion. The search was supplemented by a review of the bibliography of the included documents to identify the relevant publications. The search was limited to articles published between November 1, 2019 and May 17, 2020. The quality of the research was assessed using the GRADE system by all authors until full agreement was reached. This study represents published literature and therefore cannot be approved by the institutional review board. Table 1. Primary search strategy PUBMED (NLM), searched on 17 May 2020 – Total results 224 Step 1 ((((neurologic[All Fields] OR neurological[All Fields]) OR neurologically[All Fields]) OR (neuropathies[All Fields] OR neuropathy[All Fields])) OR (((((guillain-barre syndrome[MeSH Terms] OR (guillain barre[All Fields] AND syndrome[All Fields])) OR guillain barre syndrome[All Fields]) OR ((guillain[All Fields] AND barre[All Fields]) AND syndrome[All Fields])) OR guillain barre syndrome[All Fields])) AND (((((((((covid 19[All Fields] OR covid 2019[All Fields]) OR severe acute respiratory syndrome coronavirus 2[Supplementary Concept]) OR severe acute respiratory syndrome coronavirus 2[All Fields]) OR 2019 cov[All Fields]) OR sars cov 2[All Fields]) OR 2019ncov[All Fields]) OR ((wuhan[All Fields] AND (coronavirus[MeSH Terms] OR coronavirus[All Fields])) AND (2019/12/1:2019/12/31[Date - Publication] OR 2020/1/1:2020/12/31[Date - Publication]))) OR ((coronavirus[MeSH Terms] OR coronavirus[All Fields]) OR coronaviruses[All Fields])) OR ((severe acute respiratory syndrome coronavirus 2[Supplementary Concept] OR severe acute Coronavirus Respiratory Syndrome 2 (All Fields) OR sars cov 2 (All Fields)) COCHRANE, searched May 17, 2020 - Overall results 7 Step 1 2019 in the keyword OR covid19 in the keyword or SARS-CoV2 in the keyword and neuropathy in the keyword or Guillain-Barre syndrome in the key word (Variations of words were searched) EMBASE, search May 17, 2020. - General Results 15 Step 1 (covid19:kw OR Coronavirus:kw OR 'sars cov 2':kw) and 'Guillain Barre syndrome':kw And No1 11-2019 /sd NOT 0-5'2020)/sd Step 2 (covid19:kw OR Coronavirus:kw OR 'sars cov 2'kw:) and neurological:kw AND 1'11'2019'/sd NOT (10'5'2020'/sd Step 3 (covid19:kw OR coronavirus:kw OR 'sars 3cov 2':kw) And neuropathy:kw I (1'1'11'2019)/sd NOT (10'5'2020'/sd Initial search of three database searches combined : A total of 246 articles of candidates The following predetermined criteria were used to verify the results : (i) Original case reports or (ii) a series of patients diagnosed with GBS who tested positive for SARS-CoV-2 infection (iii) written in English, Spanish, French or Italian. For each work, the following data were extracted: number of registered patients, demographic characteristics, acute pre-disease, clinical features associated with GBS, including the timing from prior illness to the onset of GBS, the timing from the onset of GBS to nadir, the clinical subtype GBS, the assessment of the Medical Research Council, when reported, the presence of a brain injury, dystounical symptoms, attacks, treatment type. The results of supporting studies for the diagnosis of GBS, including CSF examination, magnetic resonance imaging (MRI) and anti-ganglihoside antibodies, were also reported. The GBS diagnosis was confirmed using the Brighton Collaboration criteria, indicating the level of diagnostic certainty. If Brighton's criteria were not registered, they were assessed on the basis of available data. The results of electrod diagnostic studies were reviewed and, when normal control values were also recorded, the GBS electrophysiological subtype was revised using Rajaballi criteria; otherwise, a subtype was included, as reported by the authors. Rajaballi criteria were chosen because they were shown to be the most suitable for indicative electrophysiological diagnosis of the subtype using a single electrophysiological study. Symptoms and signs of SARS-CoV-2 infection, diagnostic testing and treatment were also reported. Clinical characteristics were extracted as the number of patients whose variable was present in the number, and the total number of reported cases in the denominator: n/N (%). Cited variables were considered to be missing or not performed, rather than missing data (e.g., symptoms or diagnostic tests). 13 case reports and one series. Figure S1 (PRISMA chart) summarizes the flow of 14 articles in the review. A total of 232 articles were deleted because they were not relevant or did not provide patient information. Table 2 shows the quality of evidence for each article. Table 2. The quality of the evidence author, year magazine Training Center Type article Quality Assessment (10) Toscano et al, 2020 (12) New England Journal of Medicine Italy Case series 4 Virani et al., 2020 (13) IDCases USA Case Report 5 zhao et al., 2020 (14) Report by The Lancet Neurology China Case 5 Sedaghat and Karimi, 2020 (15) Journal of Clinical Journal of Neuroscience Case Report 5 Alberti et al. , 2020 (16) Neurology: Neuroimmunology and Neuroinflamence Italy Case Report 5 Camdessanche et al, 2020 (17) Revue Neurologique France Case Report 5 Padroni et al., 2020 (18) Journal of Neurology Italy Case Report 5 El Otmani et al., 2020 (19) Revue Neurologique Morocco Case Report 5 Coen et al., 2020 (20) Brain, Behavior and Immunity Case Switzerland Report 5n et al. , 2020 (21) Neurology Spain Case Report 5 March-Engita et al., 2020 (22) Neurology Spain Case Report 5 Shaidle et al, 2020 (23) Journal of Peripheral Nervous System Germany Case Report 5 Ottaviani et Al., 2020 (24) Neurology Sciences Italy Case Report 5 Giuliao Caamagno et al, 2020 (25) Journal of Clinical Neurology Spain Case Report 5 Table 3 summarizes the and clinical characteristics of each case with reported GBS associated with SARS-CoV 2. Table 4 shows diagnostic support tests, results and treatment. Fourteen cases were from Europe (12, 16-20, 22-25), one from the U.S., one from China, one from Iran (15) and one from Morocco. Ten of the patients were men, while eight were women. The median age was 62 years (average 64.5; range 23-77 years). In 14 patients, the diagnosis of SARS-CoV-2 was confirmed only by a smear of the nasopharynx, in three patients only a smear of the nasopharynx plus a serological test, and in one patient only a serological test (table 5). All but three of the patients showed signs of interstitial pneumonia in lung imaging tests. Cough (14 patients) and fever (13 patients) had the most common observed symptoms of SARS-CoV-2 infection in these patients, followed by shortness of breath, age, hyposmay and diarrhea (table 5). Two or more symptoms were present in 15 patients. None of the patients was Imptomatic in SARS-CoV-2 infection. The interval between the onset of SYMPTOMS coVID-19 and the first symptoms of GBS ranged from 8 to 24 days (average 9 days; median 10 days). Five patients had overlap between COVID-19 symptoms and GBS symptoms. All patients had a typical clinical form of GBS, with the exception of two patients with bilateral facial paralysis, two patients with paraparetic form and one with pure motor GBS. Eleven patients had a traumatic brain injury involved, most often one-sided or paralysis of the face that was in six (33%) patients, the figure is no different from what is observed in GBS related to other etymology (P 1,000) (26) Three patients were ataxic and one had dysautomamic symptoms (urinary retention). Nadir neurological symptoms were achieved in an average of 5 days (average 4 days; range of 2-17 days). Eleven patients met the criteria of Brighton Collaboration Level 1, five Level 2 patients and two Level 3 patients. Electrophysiological studies were carried out in all but three patients. Only seven patients were registered with the criteria used to classify cases into various electrophysiological subtypes. In three cases, normal control values used for neural conduction studies were reported and the electrophysiological subtype was revised: two patients confirmed a subtype of acute inflammatory demyelinating polyneuropathy (AIDA), while in another subtype AIDP (not specified by the authors) was identified. The most common electrophysiological subtype was AIPP (10 patients), followed by acute motor and sensory axonal neuropathy (four patients) and acute motor axonal neuropathy found in one patient. CSF was examined in all but four patients. Elevated protein levels and albuminocative dissociation with normal cell counts were present at 11 (61%) Patients. Anti-gangliosid antibodies were tested in six patients, being negative overall. Ten patients had an MRI of the head and/or spine, showing an increase in the tail nerve in two patients and facial nerve on a bilateral basis in one. Only six patients were tested for other infections that were associated with GBS or acute polyradyculopathy (table 5). All verified cases were negative for a recent or ongoing infection not related to COVID-19, except for one patient who was diagnosed with clostridium disinfectant colitis and who tested positive for rhinovirus in a butopheral smear. In CSF, a polymerase chain reaction (PCR) test for SARS-CoV-2 was conducted for nine patients, being negative in all. All but two of the patients were treated with intravenous immunoglobulin (IVIg); two received a second course of IVIg and one also plasma exchange. Results were reported in all but four patients. Mechanical ventilation was needed in eight (44%) patients (all but one of them with documented interstitial pneumonia while visualizing the lungs). In all patients, mechanical ventilation was started after the onset of GBS. Compared to GBS associated with other etiology, the frequency of mechanical ventilation did not differ significantly (P 0.1788). Six patients were required to be admitted to the intensive care unit. Two Died. It was reported that the death was the result of progressive respiratory failure in both of these patients, although it was not specified whether it was caused by GBS or COVIDOM-19. The frequency of death was not significantly different from that of related to other etiology (P 0.1045). Eight patients experienced improvement after GBS treatment, while four patients had poor results or no improvement. In 11 patients, COVID-19 was treated. The duration of subsequent treatment was registered in only 10 patients and ranged from 4 to 30 days (an average of 23 days; median 30 days). Table 3. Reported Demographic and Clinical Characteristics of Guillain-Barre Syndrome Associated With SARS-CoV-2 Patients Age (Years) Sex Time from COVID-19 Symptom Onset Symptoms (Days) Time From Onset of Neurological Diseases to Nadir (Days) MRC GBS Clinical Subtype of Craniofacial Brain Paralysis (unilateral or bilateral) Ataka Disaut Symptoms 1 (1 77 F 7 4 NR Typical No 2 (12) 23 M 10 5 Bilateral Facial Paralysis NR with Paraesthesia 61 M 7 4 NR Typical 6 (13) 54 M 10 NR Typical 7 (14) 61 F 8 4 4/5 UL, 3/5 LL Typical 8 (15) 65 M 15 NR 2/5 Proximal UL, 3/5 Distal UL, 1/5 Proximal LL, 2/5 Distal LL Typical No 9 71 F Some days 4 3/5 UL , 2/5 LL Typical 10 64 M 11 3 2/5 arms, 3/5 forearms, 4/5 hands, 2/5 LL Typical No 11 (18) 70 F 24 4 4/5 UL and LL Typical No 12 (19) 70 F 3 2 NR Typical 13 (20) 43 M 10 2 4/5 Proximal muscles and 3//5 5 distal muscles in four limbs Typical 14 (21) 70 M 6 3 NR Paraparetic 15 (22) 76 F 8 11 0/5 Proximal Muscles LL, 2-3/5 dictal muscles LL Typical 17 3/5 proximal muscles LL and 4/5 distal muscles LL Paraparetic No 17 (24) 66 F 10 3 4/5 dictal muscle UL Typical :F) 10: 8 Average 9 Average 5 Typical GBS, 13; patients Option GBS, 5 patients Total n patients 11 Total n patients 3 Total n patients 1 COVID-19, coronavirus disease 2019; F, female; GBS, Guillain-Barre syndrome; LL, lower limbs; M, man; MRC, Scale of the Medical Research Council; NR, not reported; UL, upper limbs. Table 4. Auxiliary tests, treatments and results reported by Guillain-Barre cases related to SARS-CoV-2 infection Patients Brighton criteria level CSF findings EDX subtype Cause for meeting EDX subcategory anti-Ghanglioside results MRI results Treatment for GBS Medical Intervention Follow (days) from GBS onset Reported result 1 number of white cells 4 by 3; Negative PCR Analysis for SARS-CoV-2 AMSAN Negative improvement of tailbacks IVIg NIV 30 Poor result including maintaining severe weakness of UL, dysphagia, and LL paraplegia 2 (12) 1 protein level 123 mg/dL; There are no cells. negative PCR analysis for SARS-CoV-2 AMSAN NP Improving facial nerve bilaterally IVIg 30 Soft improvement, including decrease in ataxia and facial weakness 3 (12) 1 protein level 193 mg/dL; There are no cells. Negative анализ на ТОРС-КоВ-2 АМАН Отрицательное улучшение хвосточковых нервных корешей IVIg IV 30 Плохой результат, включая прием ВИУ из-за нервно-мышечной дыхательной недостаточности и вялой тетраплегии 4 (12) 2 Нормальный; отрицательный анализ ПЦР для SARS-CoV-2 AIDP NP Head и позвоночника нормальный IVIg 30 Улучшенный, но неспособный стоять после 1 месяца 5 (12) 2 Нормальный; отрицательный анализ ПЦР для SARS-CoV-2 AIDP Отрицательный позвоночник нормальный IVIg; PEx IV 30 Плохой исход 6 x 13 НП ЭМГ не выполняется NP позвоночника нормального IVIg NIV NR Улучшение с освобождением от механической вентиляции легких, нормальная сила UL, стойкие слабости LL 7 (14) 1 уровень белка 124 мг/дл; нет клеток AIDP Ω отсутствие Волны в двух нервах с дистальной CMAP ≥20% LLN с DML > 150% ULN в одном другом нерве NP NP IVIg 30 После 1 месяца нормальная мышечная сила 8 (15) 2 NP AMSAN NP Голова и позвоночник нормальный IVIg NR NR 9 (16) 1 уровень белка 54/mgdl; 9 ячеек на мм3; отрицательный анализ ПЦР для SARS-CoV-2 AIDP NP IVIg IV умер умер 10 (17) 1 уровень белка 166 мг/дл; нет клеток AIDP Ω MCV < 70% LLN в трех нервах Отрицательный NP IVIg IV NR NR 11 (18) 1 уровень белка 48 мг/дл; white blood cells 1 × 106/L (normal 0–8 × 106/L) AIDP Ω MCV < 70% LLN in two nerves plus DML > 150% ULN in two nerves NP NP IVIg IV 4 NR 12 [19] 1 Protein level 100 mg/dl; no cells AMSAN NP NP IVIg 17 No improvement after 1 week with persistence of quadriplegia 13 [20] 2 NP AIDP NP NP IVIg NR Improvement 14 [21] 1 Albuminocytological dissociation without intrathecal IgG synthesis AIDP Negative Spine normal IVIg 11 Rapid improvement 15 [22] 3 NP EMG not performed NP NP NP Died Died 16 [23] 1 Protein level 140 mg/dl; normal cell count; negative PCR assay for SARS-CoV-2 AIDP NP Spine normal IVIg 14 Complete recovery 17 [24] 1 Protein level 108 mg/dl; no cells; negative PCR assay for SARS-CoV-2 AIDP Negative NP IVIg IV NR NR 18 [25] 2 Normal; negative PCR assay for SARS-CoV-2 EMG not performed NP Head normal NP NR Notable improvement Ω , электрофизиологический подтип пересмотрен в соответствии с критериями Раджабалли. АИДП, острая воспалительное демиелинизирование полинейропатии; АМАН, острая моторная аксональная невропатия; АМСАН, острая моторная и сенсорная аксональная невропатия; CMAP, сложный потенциал действия мышц; CSF, спинномозговая жидкость; DML, дистальная задержка двигателя; EDX, электрофизиологический; ЭМГ, электромиография; СГБ, синдром Гийена-Барре; отделение интенсивной терапии, отделение интенсивной терапии; IgG, иммуноглобулин G; IV, инвазивная вентиляция легких; IVIg, внутривенно иммуноглобулин; LL, нижние конечности; LLN, нижний предел нормальный; MCV, скорость проводимости двигателя; МРТ, магнитно-резонансная томография; NIV, неинвазивная вентиляция легких; NP, не выполняется; NR, не сообщается; ПЦР, полимераза цепная реакция; PEx, плазменный обмен; ТОРС-КоВ-2, acute respiratory syndrome coronavirus 2; UL, upper limbs; ULN, the upper limit is normal. Table 5. Clinical characteristics, diagnosis and treatment treatment Infection Patients Diagnostic SARS-CoV-2 Screening for Other Infectious Agents Fever Fever Fever Dyspnea Ageusia Hyposmay Diarrhea Visualization Lung Treatment 1 (12) NP Tampon, IGH NT - y IP 2 (12) NP swab NT - Normal 3 (12) NP swab NT - IP Athromycin 4 (12) IgG NT - Normal 5 IgG' Negative for CJ, EBV, CMV, HSV, VV, HIV, HIV- , then acinetobacter pneumonia 6 (13) NP tampon Positive for CD and rhinovirus - IP Amoxicillin , steroids, hydroxychloroquine 7 (14) NP swab NT - IP Arbidol, lopinavir, ritonavir 8 (15) NP swab NT lopinavir, ritonavir, ritonavir, azithromycin 9 (16) NP swab NT - IP Lopinavir, ritonavir, hydroxychloroquine 10 (17) NP Negative smear for CJ, MP, SE, CMV, EBV, HSV-1, HSV-2, Influenza A and B virus, HIV, hepatitis E - IP Paracetamol, Heparin, Lopinavir, Ritonavir 11 NDICE , LP, SP - IP 12 (19) NP swab NT - IP Hydroxychloroquine, azithromycin 13 (20) NP swab NT - IP Hydroxychloroquine, Lopinavir, Ritonavir, Amoxicillin, steroids 14 (21) NP swab, IgGa Negative for CMV, EV, HSV-1, HSV-2, HHV-6, HP, V'V, EC, HI, NM, SA, SP, CN in CSF - IP 15 (22) NP swab NT - IP Amoxicillin, Azithromycin 16 (23) NP swab Negative for LD, CJ and HIV - Normal 17 (24) NP swab NT - Hydrox , lopinavir, ritonavir 18 (25) NP swab NT - IP Hydroxychloroquine, lopinavir, ritonavir Ω SARS-CoV-2 IgG (chemillium-enecent immunoanium). CD, Clostridium difficile; CJ, Campylobacter jejuni; CMV, cytomegalovirus; CN, cryptococcal neo-formals; CSF; cerebrosal fluid; EBV, Epstein-Barr virus; EC, Escherichia coli; EV, enterovirus; HHV, human herpes virus; HI, Hemophilic influenza; HIV, human immunodeficiency virus; HP, human parehovirus; HSS, herpes simplex virus; IgG, immunoglobulin G; IP, interstitial pneumonia; LD, Lyme disease; LM, listeria monocytogenes; LP, Legionella pneumophila; MP, Mycoplasma pneumonia; NM, Neisseria meningitidis; NP, nasopharynx; NT, not tested; SA, Streptococcus agalactiae; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; SE, Salmonella enterica; SP, Streptococcal pneumonia; WV, wind cup oster virus. anti-SARS-CoV-2 IgA and IgG ELISA serum (EUROIMMUN, Seekamp, Germany). Our systematic review shows that published cases related to SARS-CoV-2 tend to report sensorymotor, predominantly demyelinating GBS with a typical clinical presentation. Clinical features and the course of the disease seem similar to those observed in GBS associated with other etymology. COVID-19 has infected nearly 5 million people worldwide and killed more than 314,319 people so far at the time of writing. Neurological symptoms associated with SARS-CoV-2 infection were observed by Mao et al, but none of the 214 patients reported in their series had GBS. Serial was suggested as more accurate than one study to create an electrophysiological subtype of GBS (11, 31). Only one of the patients included in the review underwent a second electrophysiological study. Three patients were able to revise the electrophysiological results using Rajaballi's criteria. The time between the onset of infectious disease and the first neurological symptoms, the absence of cells in CSF, the negative PCR analysis on SARS-CoV-2 in CSF performed in half of the patients, and the reported improvement after IVIg involves post-infectious disimmunic underlying pathological mechanisms rather than direct exposure to the virus. The immune system was reported to be disregulating due to COVID-19. The positivity of the nasopharyngeal smear and the presence of interstitial pneumonia in most patients may suggest the parainfectional nature of GBS time. However, if you know that the INCubation period of SARS-CoV-2 is about 1 week and may be as long as 24 days in some patients, the post-infectious mechanism seems more likely. This could also explain the reason for GBS predating coVID-19 symptoms in one patient. However, these results should be interpreted with caution, as the cases included in this systematic review are variables in the diagnostic identification and presentation of variable data. Only a few of the patients have been tested for other infectious agents that are known to be associated with GBS. One patient tested positive for Clostridium difficile and rhinovirus, but these infectious agents are not known to be associated with GBS, and they are commonly found in hospitalized patients. There is still a random link between COVID-19 and GBS. An Italian multicenter case control study is currently under way to study the association. The average time between the onset of prior infectious symptoms and the onset of neurological symptoms, the age distribution of patients, the high male frequency, the nair time of neurological symptoms is all in line with previous studies on GBS 1, 2 . All but two of the patients met Brighton's Level 1 or 2 criteria. Anti-gangliosid antibodies were negative in all patients that were tested. These antibodies are usually associated with the axonal variant of GBS, which appears to be found in a minority of GBS patients associated with SARS-CoV-2 infections. Future studies should assess whether GBS patients associated with SARS-CoV-2 are a specific subgroup with different targeted antigens. Most patients with COVID-19 are imptomatic. Conversely, all patients included in this report have reported symptoms of COVID-19, although this may be due to the bias of the observer. Nearly half of the patients received mechanical lungs that don't different from what is observed in GBS related to other etymology. It is possible that GBS-induced pulmonary dysventilation exacerbates breathing problems caused by COVID-19 pneumonia observed in most registered patients. In addition, mortality (11%) GBS associated with SARS-CoV-2 infection seems similar to what is observed in non-SARS-CoV-2 GBS (3%-10%). Limitations of our systematic review include a lack of analyzed cases, greater variability in the diagnostic detection of GBS and SARS-CoV-2 and the brief subsequent development of patients. associated with COVID-19, report sensorymotor, predominantly demyelinating GBS with a typical clinical presentation. Clinical features and the course of the disease seem similar to those observed in GBS associated with other etymology. These results should be interpreted with caution, as so far only 18 cases have been reported in a heterogeneously. The authors do not state that there are no financial or other conflicts of interest. The data that support the results of this study can be found by the author concerned at a reasonable request. Please note that the publisher is not responsible for the content or functionality of any supporting information provided by the authors. 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