



Global series: Complex regional pain syndrome: abstracts from the International Association for the Study of Pain complex regional pain syndrome SIG virtual symposia 2021

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Abstract

The aim of this IASP complex regional pain syndrome (CRPS) SIG Global Series 2021 was to bring together clinicians including those from developing countries to better understand the clinical presentation of complex regional pain syndrome in countries with less well-published patient populations. The purpose was to learn from each other about the range of treatments, successful outcomes, and challenges experienced. These meeting proceedings comprise abstracts from nine countries that span 4 continents and are summaries of online presentations delivered by speakers representing these countries over the course of 2 symposia. The symposia were attended by a global audience of approximately 360 people. Patients with CRPS were described and treated by clinicians from countries across Asia (Pakistan, Jordan, South Korea, Taiwan, and Singapore), South America (Brazil and Peru), Africa (South Africa), and Europe (Norway). This reflects that CRPS exists across borders, ethnicities, and cultures. These proceedings provide a broader perspective within the international pain community about how we can better understand and treat CRPS across the globe.

Overall introduction

Complex regional pain syndrome (CRPS) is a disabling primary pain condition with associated swelling, colour, temperature, motor, and trophic changes that normally affect a limb. The aetiology is unknown, and there is currently no cure.

Knowledge is limited among the international pain community about how CRPS presents in countries with less well-published patient populations ie, outside Western Europe, Australia/New Zealand, or North America.

The aim of this IASP CRPS SIG Global Series was to bring together clinicians including those from developing countries as

determined by the United Nations¹ (World Economic Situation and Prospects 2019) and others to better understand the clinical presentation of CRPS in countries with less available information.

The purpose was to learn from each other about the range of clinical presentations, treatments, successful outcomes, and challenges experienced. More specifically, the objectives were to:

- (1) Understand typical clinical presentations and diagnostic challenges among patients with CRPS from a broad range of ethnicities and cultures.
- (2) Appreciate “on the ground” management achievements and challenges of CRPS and how these might be approached.

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(3) Learn about treatment options currently available to clinicians for CRPS in these countries and which approaches may be suitable to help us better understand best care.

Despite the challenges of 2021, 2 virtual symposia held in June and November 2021 formed the Global Series. Clinicians and academics from all over the world came together virtually to share clinical practice and evidence about the management of CRPS.

Over the course of the 2 symposia, a global audience of approximately 360 people viewed 15-minute presentations delivered online by speakers representing 9 countries that span 4 continents (see **Fig. 1** for participating countries). Presentations were followed by live interactive discussion and questions from the international virtual audience.

Abstracts from each presentation are presented in the following section. The concluding section provides an overall descriptive summary combining key aspects of the presentations in addition to points raised within the interactive discussion and areas identified for further work.

Challenges in the diagnosis and management of CRPS in Pakistan

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Introduction: Pakistan is the world's fifth most populous country with an estimated population of 207,774,520 according to 2017 census. There are only 13 teaching institutes for pain medicine in the country and 315 dedicated pain physicians. There have not been any CRPS-related research publications from Pakistan which could give an idea about the incidence or presentation of CRPS in Pakistan.

Methods: We designed an online survey <https://forms.gle/iysuXGZUHjXshSCT9> conducted in 2021 regarding Challenges in Diagnosis and Management of CRPS in Pakistan. This online questionnaire was sent to all 315 dedicated pain physicians. Two hundred sixty-eight (85%) clinicians completed the survey.

Results: The number of patients with complex regional pain syndrome (CRPS) treated by each pain physicians during past 1 year was between 7 and 10, and the average duration of CRPS symptoms was 1 to 2 years. Of the total patients diagnosed with CRPS, only 16% were diagnosed according to the Budapest criteria. Regarding management, 65% of the patients were managed using pharmacological agents only. Thirty-nine percent of the patients were prescribed opioids, and 31% received regional blocks and epidural injections.

Conclusion: Most of the patients were diagnosed with CRPS without using any specific diagnostic criteria. A multidisciplinary approach (involving physiotherapists and psychologists) was not used in most patients. The main reason was unavailability of trained physiotherapists and psychologists in the country. There is a need to raise awareness about diagnosis and management of CRPS. Teaching sessions in collaboration with local pain clinics, CRPS research fellowships, and virtual training of local physiotherapists may help improve management of CRPS in this part of the world.

CRPS in Brazil—clinical picture and treatment models

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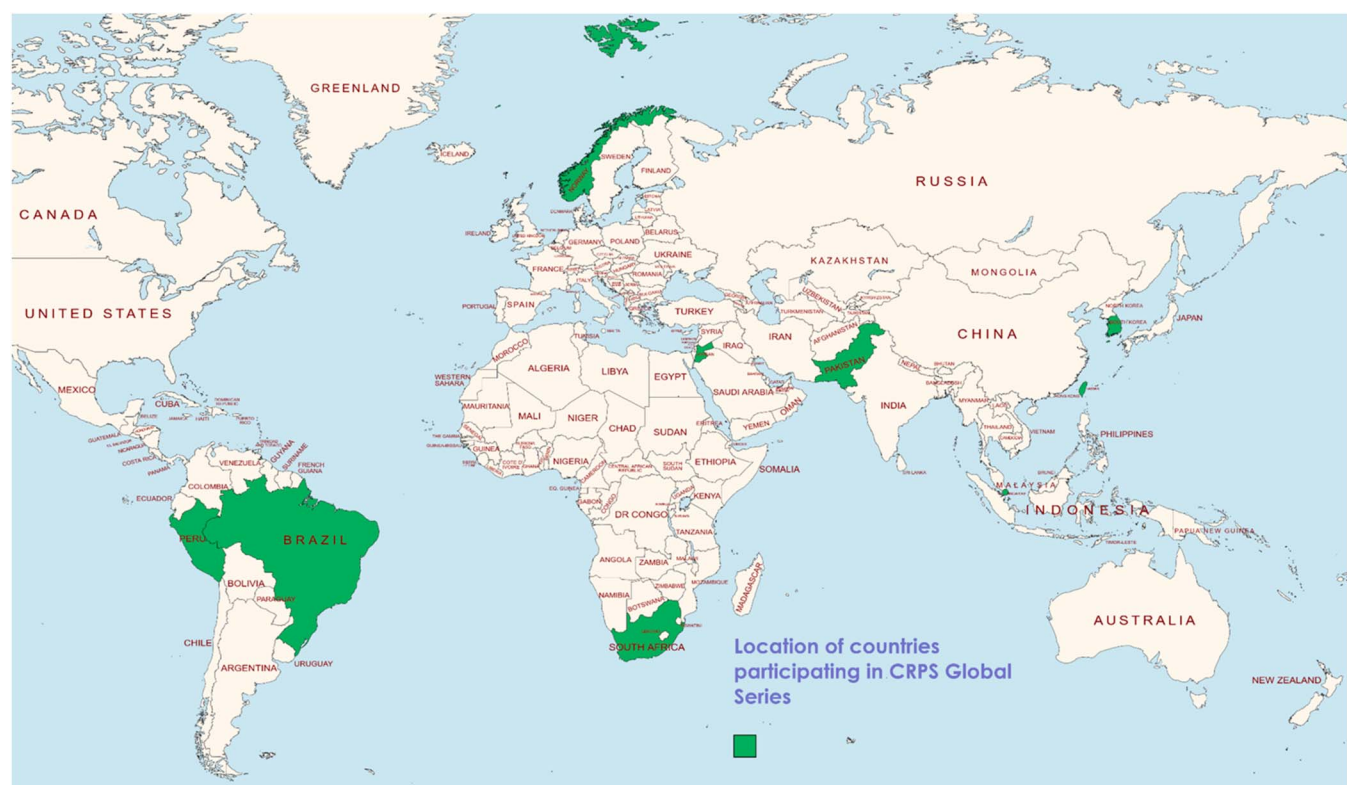


Figure 1. Global series: participating countries.

Introduction: Chronic pain affects 18% of the general population of developing countries and 80% of the world's general population live in developing countries. Chronic pain disorders such as low back pain and migraine are among the most common health conditions worldwide and pose a heavy burden on the health system. However, other rare pain conditions such as complex regional pain syndrome (CRPS) may present great management challenges because they require specialized multiprofessional care, specific drugs regimens, rehabilitation facilities, and sometimes surgical approaches.

Methods: The main challenges related to CRPS management and health care education will be reviewed as well as the evidence supporting minimally invasive therapeutic interventions.

Results: Complex regional pain syndrome poses several strains in the health care system. If general education of care providers is frequently cited to be insufficient in developing countries during graduation years, the figures are more worrisome in developing countries. Lay man education is also very restricted, as are the advocating activity of patient groups. In the last years, Brazilian researchers have developed experimental CRPS studies to contribute to the knowledge in its mechanisms of pain, and phase II clinical trials using new treatment approaches for CRPS such as noninvasive brain stimulation and sympathetic blocks were reported.

Conclusion: Despite economic and organizational challenges, CRPS research and education have substantially increased in the past decades in Brazil, at least in large centres of large cities. The degree of capillarity these activities had into smaller located in the countryside is still to be determined.

CRPS in sub-Saharan Africa: diagnostic challenges and resource considerations

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Introduction: Sub-Saharan Africa had an estimated population of 1.1 billion in 2019. Sub-Saharan Africa has some of the highest levels of income inequality, translating in inequity in access to health care and specialized pain services.

Methods: Data from clinical observations and a case series conducted at our tertiary level, state-funded adult and paediatric hospitals in Cape Town, South Africa, are presented.

Results: We are referred, on average, 4 new cases of severe CRPS annually. Most are CRPS type 1 with severe functional impairment. In our paediatric population, there seems to be a higher incidence in women, with lower limbs most commonly affected. Although the Black South African population constitutes 81% of the South African population, a lower number of CRPS cases from this population group have presented. Time between initial injury until presentation to our paediatric pain service was 2.5 to 27 months (mean 7.5 months [SD \pm 7.8]). Delayed presentation may be due to a lack of health care worker and public knowledge of the condition as well as limited accessibility to specialized pain services. Our treatment is based on a biopsychosocial approach with an emphasis on functional improvement.

Conclusion: Although incidence, sociodemographic, and clinical features of patients presenting with CRPS in our tertiary level facilities seem similar to specialised pain services based in developed countries, further high-quality research is required to establish the true incidence and clinical course of CRPS in sub-Saharan Africa.

Characteristics of CRPS in South Korea

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Introduction: South Korea has a 26th population number with a homogeneous ethnicity (97% Korean). The Korean NHIS is a single-payer national insurance system mandatory for all citizens. Korea is the only divided country, and all healthy young men are required to serve in the military. Under the specific aspect, we aimed to investigate the complex regional pain syndrome (CRPS) characteristics in South Korea.

Methods: The epidemiology of CRPS was assessed using the Korean NHIS database. Clinical Characteristics of CRPS in South Korea were referred to in previous studies.

Results: Diagnosis of CRPS is made using the modified IASP criteria, classified into CRPS type I, type II, and posttraumatic pain syndrome (CRPS-NOS). The prevalence of CRPS was 29 per 100,000 person-years in South Korea, entitled as a rare disease with medical benefits supported by the Korean NHIS. Only 5% cost of the medical service has been paid by patients with CRPS out-of-pocket money including spinal cord stimulation and intrathecal pump implantation therapies, although some interventions, such as routine injections of bisphosphonate, cannot be costed. According to a study in a large university-based hospital, CRPS was twice more common in young men than in young women in South Korea. Among those male patients, 47.5% had CRPS during their military service period.

Conclusion: The prevalence of CRPS is rare in South Korea. After being diagnosed with CRPS, patients can be medically supported with economic benefits. Although a multidisciplinary team approach for managing CRPS has been made, further research on their epidemiology and the medical prognosis is necessary.

Taiwan CRPS

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Introduction: In Taiwan, the population is 23.5 million while the land area is 36 thousand km². We have 2.48% aboriginal, 96.42% Han Taiwanese, and 1.1% others. Most speak Chinese, Taiwanese, or Hakka. Work setting: a university-affiliated medical center.

Methods: In Taiwan, we have universal coverage National Health Insurance system, so population-based data could be retrieved from NHI database. In addition, patients with complex regional pain syndrome (CRPS) tend to be referred to medical centers.

Results: One nationwide population-based survey found that between 2004 and 2009, we have only 589 patients who were diagnosed as CRPS mostly by neurologists and anesthesia pain physicians. We have also performed an informal small-scale survey among Taiwan pain society members to confirm that CRPS is rare. Most clinicians use the Budapest criteria for diagnosis. The case number could be underestimated. Treatment is similar to other western countries.

Conclusion: In Taiwan, CRPS is rare but clinicians can diagnose the disease and treat properly.

Complex regional pain syndrome (CRPS) in Norway

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Introduction: Norway has a population of 5.4 million. Immigrants represent 15% and originate mainly from the European Union/European Economic Area and Asia. Approximately 1/3 of the population has higher education, and the unemployment rate is low (3.4% in 2021).³ Services by the public health care and the educational system are free, and the social security benefits are comprehensive. Incidence and prevalence of complex regional pain syndrome (CRPS) are unknown, and national clinical guidelines are lacking.

Methods: This report on CRPS in Norway is based on case reports, clinical observations, preliminary results from own study, published research data, and from personal communication with Norwegian clinicians working in this field.

Results: The knowledge of CRPS is limited, and there is a significant delay in diagnosis.^{1,2} The diagnosis is mainly made by medical specialists and rarely by primary care physicians.¹ There seems to be a consensus among Norwegian physicians working with CRPS to apply «the Budapest criteria» now adopted by IASP. The clinical picture of CRPS varies from uncomplicated cases with spontaneous remission within months, to patients with persistent symptoms but with rehabilitation potential, and finally to patients with “irreversible” symptoms not responding to adequate rehabilitation. Treatment: cortically directed sensory-motor rehabilitation and psychotherapy are implemented in some centres. Invasive procedures and drugs (gabapentin, pregabalin, TCA, steroids, and bisphosphonates) are less frequently applied. Clinicians argue for an individually “tailored” treatment approach.

Conclusion: Knowledge of CRPS and adequate treatment of the disease are limited in Norway, and there is a need to improve early diagnosis and treatment.

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CRPS in Singapore

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Introduction: Singapore has a government-run, publicly funded universal health care system using a cost-sharing multipayer framework. Health care is heavily subsidized, but patients still pay significant out-of-pocket costs for outpatient treatments. Our tertiary institution’s chronic pain management centre uses a multimodal, multidisciplinary model to approach and manage our patients with complex regional pain syndrome (CRPS), including medications, percutaneous interventions, physiotherapy, occupational therapy, and pain psychology.

Methods: A simple polling of pain specialists in our institution was performed.

Results: The frequency of new referrals to our centre for management of suspected CRPS is uncommon, at a frequency of once per month or less. Patients typically were offered a combination of treatments, but these medications (tricyclic antidepressants, gabapentinoids, topical therapy, etc.) were most preferred. Reasons cited for declining other aspects of multimodal care included the cost and hassle of having to return for multiple sessions of therapy. In addition, some patients felt uncomfortable about being referred to see a psychologist for chronic pain.

Conclusion: Complex regional pain syndrome is infrequently seen at our pain management centre. This may be a reflection of a truly low population incidence but may also be due to underreporting/underrecognition. Some patients may also have symptoms mild enough to not warrant a specialist referral. Barriers to accepting multimodal pain management include the costs of outpatient therapy, having multiple outpatient appointments, and prevailing social stigma regarding psychotherapy. Interventions targeting such barriers (eg, patient education) may lead to improved care for our patients with CRPS.

CRPS: clinical picture in Perú

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Introduction: Perú is a multiethnic and multicultural country. More than 30% of the population live in the capital city. Proper health care for conditions such as complex regional pain syndrome (CRPS) is difficult to obtain.

Methods: This is a medical record review of 14 follow-up patients.

Results: Main referral specialties include orthopedic surgery (43%), PM&R (36%), neurology (14%), and internal medicine (7%). In total, 93% of cases were assessed by more than 1 specialist before referral to pain services. Only 14% of referred cases had proper medication, considering neuropathic features. Among presented cases, 32% were type I CRPS, 13% were type II CRPS, 10% were CRPS NOS, 32% of cases corresponded to CRPS with remission of some features, and 13% of cases were discharged during data collection period. The Budapest criteria reported features were sensory 7%, motor/trophic 47%, sudomotor/edema 40%, and vasomotor 47%. Factors that could interfere with diagnosis are recent surgery (63%), psychological distress (19%), and possible secondary gain (19%). Treatments offered: conservative measures in all cases (physiotherapy and medication); antigravitational therapy aiming to help with kinesiophobia, retraining gait, and proprioception. Procedures include infusions, peripheral nerve blocks, sympathetic blocks, neuromodulation (SCS), and psychological therapy.

Conclusions: (1) The Budapest criteria were not fully met. CRPS with remission of some features widens the diagnostic criteria. Identifying factors that interfere with the diagnosis could be valuable for diagnostic approach and treatment plan. (2) Access to proper health care, including educational aspects of health care workers limit adequate diagnosis, treatment, multidisciplinary care, and follow-up. (3) Educating non-health care population, empathy and respect with local cultural beliefs is very important.

CRPS in Jordan

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Introduction: Complex regional pain syndrome (CRPS) is largely misdiagnosed and not treated efficiently because of lack of knowledge and limited specialist pain centers in Jordan. Patients are easily missed between different specialties or sometimes labelled as having a psychological condition because of no identifiable pathology being found for the severe pain. In our centre, we have around 5 to 7 cases a year that are referred for invasive pain management procedures after failure of different oral analgesic treatment and physiotherapy in cooperation with multidisciplinary work between pain physicians, orthopaedics, physical therapy, neurology, and neurosurgery.

Method: We use IV Regional Anaesthesia blocks (IVRA) and Stellate ganglion blockade techniques in addition to physiotherapy for cases of limited range of motion. We diagnose our patients clinically according to the IASP criteria and include investigative diagnostic procedures such as nerve conduction studies and 3 phase bone scans. Most of our patients develop syndrome after trauma to the upper limb. Patients with lower limb involvement seem to benefit from stellate ganglion block.

Results: A retrospective review of patient outcomes revealed a significant drop in pain scores. This was not affected by sex, age, type of CRPS, or duration of symptoms. Patients' satisfaction was also significant among different demographic groups. Complications were rare and nonsignificant clinically.

Conclusion: IVRA and stellate ganglion blocks in addition to physiotherapy in cases with limited range of motion enhance limb recovery and seems to be safe. Our course of therapy is an effective, inexpensive method in treating CRPS and reduces oral analgesic consumption.

Concluding summary and discussion

Patients with complex regional pain syndrome (CRPS) were described and treated by clinicians from countries across the 4 continents of Asia (Pakistan, Jordan, South Korea, Taiwan, and Singapore), South America (Brazil and Peru), Africa (South Africa), and Europe (Norway). This reflects that CRPS exists across borders, ethnicities, and cultures.

The incidence was either not reported or unknown in most cases, although South Korea provided a prevalence of 29 per 100,000 person-years. There were differing opinions as some stated the incidence in their country (South Africa and South Korea) appeared similar to published data from other countries whilst others simply reported CRPS to be rare based on low referral numbers (Taiwan). In terms of ethnicity, 96% of the Taiwanese population are Han Taiwanese and 81% of the South African population are Black South African, yet in both countries, people from these ethnic groups were rarely seen. It is not known whether the incidence is lower among these ethnicities or if other reasons account for low referral rates.

Where reported, more women presented with CRPS than men, apart from South Korea where the higher rate in men was thought to be due to compulsory military service among young men.

Presenting clinicians described CRPS referrals as uncommon or rare and where reported, received between 4 (South Africa) and 8 (Peru) new cases per year for treatment. Some expressed that the small number of referrals might be due to underreporting and/or underrecognition of CRPS. Cultural beliefs were also identified as an issue, for example, CRPS is stigmatised in some communities because it is believed that the condition is associated with witchcraft. Health inequalities associated with access to treatment within countries were also mentioned (Brazil, Peru, and South Africa). These related to location (urban-rural) and economics (affluent-poor areas).

The Budapest criteria were the most reported diagnostic tool.

Cases were treated by specialists in tertiary settings and clinical presentations ranged from mild to severe symptoms. Treatments included medication, interventions such as anaesthetic blocks and spinal cord stimulators. Multidisciplinary rehabilitation and pain management were described and some centres offered specific rehabilitation approaches such as sensory-motor rehabilitation (Norway) and antigravitational therapy (Peru). Some reported that patients were reluctant to receive psychological treatments due to social stigma or because this service was not publicly funded.

Research reported as being conducted involved noninvasive brain stimulation, sympathetic blocks and a combination of anaesthetic blocks (Jordan).

Barriers to treating CRPS were identified as a lack of specialised pain services which in some cases included no formal pain management programme. Furthermore, minimal access to appropriately trained physiotherapists, occupational therapists and psychologists was a limiting factor to treatment.

The following areas were prioritised for further work. A resounding call was expressed for improved worldwide awareness of the condition particularly among health care professionals in the diagnosis and treatment of CRPS. Patient and public awareness and education were also recognised as a priority. Furthermore, multiple barriers for referral and treatment seemed to exist and should be investigated more systematically in future studies.

Epidemiological research is also required to establish the incidence and clinical course of CRPS among those less represented countries to better describe and quantify CRPS populations across the globe. Studies within ethnic groups where the rates of CRPS seem low, for example, Han Taiwanese, would be of particular interest as this may provide further insight into the pathophysiological mechanisms of CRPS.

Moreover, there is a need to develop cost-effective tools for the treatment of CRPS that can be validated in different ethnic populations and delivered in resource-limited environments.

In conclusion, this Global Series draws attention to the clinical presentations of CRPS in countries with less well-published patient populations. These symposia provide a broader perspective within the international pain community about how we can better understand and treat CRPS across the globe.

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