Webinar transcript: Rehabilitation in conflict – Spinal Cord Injury

This is an edited transcript of the webinar. Minor changes have been made for clarity, readability, and accessibility. The content has been structured to support translation tools and screen readers.

Opening remarks

Colleen O'Connell (ISCoS)

Hello everyone. Good evening, good morning, good afternoon from wherever you are joining us in the world.

My name is Colleen O'Connell, and I am a rehabilitation physician from Canada, currently in Ukraine. I am the chair of the International Spinal Cord Society Emergency Subcommittee.

It is my immense pleasure to introduce to you today our panel, myself, and my colleague Jo Armstrong, who is a physiotherapist from Stokeville Mandeville, who has worked in several areas in the world in conflict and is a member of our ISCoS Emergencies Committee. Together, we will help field the questions.

Doctor Aladin Elmalik will be starting. He is in Australia and from Sudan and has a lot of international experience and he is a rehabilitation physician.

Firas Sarhan from Palestine, who is a spinal cord injury nurse and the head of an education programme for spinal cord injury will then be speaking.

And lastly Eric Wertz from Humanity and Inclusion and the ISCoS Emergencies Committee will speak on the therapy roles. He is a rehabilitation specialist.

And with that, now I will invite my colleague, Doctor Elmalik, who will share his screen.

Dr Aladin Elmalik (Royal Melbourne Hospital)

Thank you so much, Colleen. Thanks everyone for attending today. And thank you to World Physiotherapy and WHO.

I have the pleasure of presenting today an overview of spinal cord injury in conflict settings, whether that is man-made conflict or a natural disaster.

As Colleen said, I work at the Royal Melbourne Hospital, but originally, I am from Sudan.

So, I think what we need to understand is the general principles for emergency intervention and spinal cord injury care. Usually, extrication in challenging environments, triage with limited resources, surgical and medical attention, can bring questions as well.

Early functional rehabilitation is always recommended, psychosocial support for the patient and their family and planning long-term reintegration into the community, in terms of getting back to work and back to society.

Part of it is also to define a teaching expert group. The Minimum Technical Standards of the WHO key initiatives assess each trauma patient for spinal cord injury and handle and transfer of a patient appropriately to avoid secondary complications.

How do we examine the patient? How do we log-roll? How do we re-examine the patient? We always try to make sure that we attempt to avoid secondary complications.

Ensure appropriate examination, provide analgesia, and ensure immobilisation of the spine, because we do not want any further damage to the spine.

Also, especially in limited resource countries, we must avoid prolonged periods of sitting or lying on hard transfer boards to prevent skin issues or pressure ulcers.

Ensure continence with bladder and bowel care, as I said, skin care as well and transfer of patients suspected of spinal cord injury to a facility with the ability to definitively manage their injury.

We always try to transfer them to a specialised area where they can get spinal care. And we follow the guidelines from the Ministry of Health for patients with suspected spinal cord injury.

All of us, from all disciplines, are engaged in patient care. We need to ensure a continuum of care, from the emergency department or from the team for emergencies to the acute ward to rehabilitation and back to the community.

So, our recommendation is identifying a patient with designated spinal cord injury, identifying sites with family support, initiate training, mentoring in under-resourced country or region, for short and long-term goals and fostering coordination of care between stakeholders in emergency and long-term management.

The teams are looking after the patient. They need to be able to talk to each other, integrate with each other, to provide the best care for the patient. Ensure that patient care is always there whenever the patient goes, they have this identification as a patient with spinal cord injury, so they can receive the care they need.

Of course, in normal settings or usual settings, it is different from an austere, conflict reality.

Evacuation can be different. In normal settings or in well-developed countries, usually evacuation can be immediate and rapid over helicopter ambulance within the golden hour.

When you are in conflict areas or conflict zones, sometimes that can be a problem and the stretchers can be made of hardboard and the facility in high income countries will be specialised, but in austere settings it will be overwhelmed type 1 or 2 hospitals.

Sometimes they do not have CT or MRI. Surgery will be provided on the spot, if required or indicated in high income countries, however, there will be delays or sometimes it does not happen in conflict areas.

Discharge is usually a coordinated discharge to make sure that the patient is safely and appropriately integrated into the community in high income countries.

However, in conflict areas they often go to a refugee camp or go to a tent or go to a relative. There is an enormous difference between the two. Mechanisms of injury and the context are

different as well, usually in blunt and crush trauma, an earthquake or building collapse or blast, often caused by close or highly unstable stable structure, there is a high risk of secondary injury, and in penetrating trauma, like an active compound gunshot or machete attack, the profile is often contaminated with high infection risk, and it can go beyond the point of injury as well.

The clinical profile is also different. There is a high probability of associated chest, abdomen and pelvis or long bone fractures, and in penetrating trauma, usually, as there is elevated risk of associated vascular or visceral injury, depending on the trajectory of the bullet or the gunshot.

Early acute care is especially important; we always need to try to catch the golden hour.

It requires an A, B, CDE protocol. Which is airway, maintain airway while applying a strict manual in-line stabilisation. We do not use traction on children in low resource settings. Breathing, we always check for breathing, ensure that breathing is maintained. We check the circulation and make sure that circulation is intact as well. C stands for catastrophic haemorrhage.

Severe peripheral hemorrhage is usually the primary lethal injury in armed conflict. Tourniquets and packing precede spinal care in this setting.

What do you need to do? You need to assess the pulse circulation sensation.

Check all the sensations, across the body, go from top to bottom and check the strength and I will speak later about the key muscles, how to check the strength of the muscle.

You grade them 0 to 5 and quickly do that without causing any further damage to the spine.

The main types of spinal cord injuries, according to the classification, are complete spinal cord injury or incomplete.

Complete means there is a complete section or complete cut of the spinal cord. There will be interruption of the impulses coming from the brain, or any area above the level of injury, to below the injury.

However, in incomplete injuries, there will be a pathway where there will be some impulses or connections between the two parts, the brain and above the injury and below the injury.

If we go back to the anatomy of spinal cord injury, as we can see here, we have the cervical, the eight cervical dermatomes and, we have the thoracic or sometimes we call it the dorsal and we have the lumbar and the sacral.

Each area is responsible for the neural supply to the organs or the muscles in the body. And we talk about the main muscles or the key muscles, which are the elbow flexors, wrist extensors, elbow extensors, and finger flexors.

And on the lower limbs, the hip flexors, and the extensors. These are especially important in helping us to classify the spinal cord injury.

If the injury is of the cervical level it can lead to tetraplegia. Tetraplegia depends on if it is a high spinal or low spinal injury, because if it is low spinal, some of the movement in the upper chest can be retained.

An injury to the thoracic region can result in paraplegia. Paraplegia means paralysis of both lower limbs and the lumbar.

Sacral injuries can lead to other injuries, which we can talk about later. This is another image showing the difference between complete and incomplete injuries.

You can see here, the one on the right side of the screen shows that there is some passage of the impulses or a path of the neurones passing the point of damage in the incomplete spinal cord injury.

If you have a high cervical injury, what are the organs that are involved?

As we know, the supply of these organs, for breathing, the chest if the intercostal muscles or the diaphragm, usually comes from the neck. We have the phrenic nerve from the neck and lower intercostal muscles that control breathing.

The cardiovascular system supply comes from the neck as well, or from the brain stem, and a patient with a high cervical injury can also suffer from impaired urinary and bowel function, as well as affecting their ability to walk and sensation.

If we go down lower, lower spinal cervical injuries can also affect all these, but to a lower degree. If you see here on this picture here in the upper right corner lower cervical injury can result in tetraplegia, quadriplegia, or paraplegia.

A thoracic injury usually causes a slight breathing problem, muscle weakness and bladder and bowel function. Lumbar injuries usually cause muscle weakness, impaired urinary and bowel function.

The ISNCSCI, the International Standard of Neurological Classification and assessment, has three field notes.

Sensory examination usually uses pinprick or light touch, motor examination, the ten key muscles I mentioned before, and the clinical indicator usually tests for anal pressure and voluntary anal contraction and sensation.

This will help you to differentiate between complete and incomplete. If the anal contraction is preserved, and there is a sensation, then that signifies an incomplete injury. If it is absent, then that is a complete spinal cord injury.

The sensory examination and motor examination will help you to define the level of the injury. This is the ASIA sheet, the international standard for neurological classification of spinal cord injury.

And you can see here these are the key muscles in the upper limbs and the key muscles in the lower limbs, from C2, C3, C4 and down to S4 S5.

This is where you evaluate sensations on both sides on the right and the left then you record this and this will help you confirm a diagnosis.

Imaging is especially important in confirming the injury.

Usually you can obtain an X-ray, but the definitive radiological diagnostic tool is MRI or high-definition CT scan if MRI is not available.

If you can see here on the X-ray, it shows there is disruption of the vertebral column, it can not show you the spine, but when you do a CT scan, you can see that it is, for example, like this picture here, there is a fracture in the vertebrae and if you look at the spinal cord here, there is damage of the spinal cord.

So that corresponds with this vertebral damage as well. MRI is the gold standard here. As I said, a thin cut CT scan can and should be used to evaluate abnormal suspicious areas and typically the cranial cervical or cervical thoracic junction tract can be imaged.

If you do not have an MRI but you have a plain film and a directed CT scan, that can provide you with a false negative rate of less than 0.1%, which can be especially useful.

There is a concept that we call neurogenic shock due to disruption of sympathetic output to the heart and the peripheral vasculature, and this is different from vascular shock.

I will speak more about that. A neurogenic shock occurs because of a huge influx of unopposed parasympathetic responses, and we can expect low blood pressure and heart rate.

In neurogenic shock the blood pressure will be reduced, and we will have bradycardia, the patient will have difficulty breathing, and the skin will be warm and dry and because of the injury, they will have weaknesses, paralysis, and absent reflexes.

The difference between neurogenic shock and hypovolemic shock, the etiology on neurogenic shock is loss of sympathetic outflow and in hypovolemic shock the problem is lots of blood.

Blood pressure in neurogenic shock will be low. Blood pressure in hypovolemic shock will be low as well. However, the heart rate in neurogenic shock will be low.

But in hypovolemic shock it will be high to push more blood to the areas that are affected by the loss of blood.

The skin in neurogenic shock will be warm, but in hypovolemic shock it will be cold because there will be drainage or movement of the blood from the skin and subcutaneous areas going to supply and feed the essential organs.

Urine output will be normal, but in hypovolemic shock it will be low because of the internal movement of the blood.

The mean arterial blood pressure will be greater than 85 and the systolic will be higher than 90.

In our understanding of spinal cord injury usually a patient will have low blood pressure so we should be aware that we use a Vasopressor if needed, but we always need to avoid fluid overload.

So do not attempt to correct the blood pressure by giving fluid because that can lead to fluid overload.

In limited resources countries or in conflict areas the needs for surgical management are CT imaging, sterile operating room, an experienced spinal surgeon and indication of unstable closed fracture. But that is not always available or if it is available, it will be delayed.

So non-operative management needs a high nurse-to-patient ratio, which is sometimes not possible, but that is required and an indication for the administration trauma.

With any trauma in conflict areas, it usually carries a risk of contamination and infection, so usually there will be an accompanying infection of the wound or injury. We always need to emphasise wound management and skincare.

Most of the time we give antibiotics and prolonged immobilisation, however, without a trained spinal surgeon, CT, or sterile operating theatre, surgery can cause more harm. We need to be aware of that.

How do we look after these patients in a non-operative ward? Hemodynamic stability.

Try to maintain the mean arterial blood pressure around 85 for seven days post-injury to ensure the perfusion of the spine and maintain log-rolls.

When the patient needs to turn, we need to have five people there to safely turn the patient in a certain way. And strict immobilisation of up to 12 weeks of bed rest.

Traction can be used as well, and to care for the skin or to prevent skin injuries, two hourly turns are usually completed.

A pressure injury usually appears, and we need to be aware of the secondary complications, usually secondary complications happen in people who cannot move by themselves or who sometimes develop breathing, coughing and bladder and bowel problems.

Usually lungs, respiratory failure, or infection in the lungs. Skin, pressure ulcers, pressure injury, blood, and bowel sepsis.

Elevated risk of infection in the UTI and impaction in the bowel as well.

DVT is also common then, so we always need to use VTE or DVT prophylaxis where available. Sometimes we need to use mechanical prophylaxis as well.

There are other complications like autonomic disorders. Autonomic dysfunction in spinal cord injury refers to the disruption of the regulation of body function by the autonomous nervous system.

And from our knowledge of the nervous system, the autonomic nervous system runs from the ganglions and the nerves coming from the spinal cord, if there is any disruption of the spinal cord, there will be disruption of the autonomic nervous system.

We are going to talk about autonomic dysreflexia, which is quite a common complication of spinal cord injury.

Ventilatory support can be done in many ways, mouthpiece ventilation, mask ventilation, or CPAP, BiPAP or tracheostomy.

And these pictures are of the mask and the endotracheal intubation and tracheostomy.

We need to make sure that there is airway clearance. So, if anyone, especially if they are a cervical or upper thoracic patient, has respiratory muscle weakness, they are at risk of secretion, retention, airway secretion retention, aspiration, and respiratory failure.

We need to help by clearing these secretions, but poor clearance of these secretions increases anxiety distress and reduces quality of life as well as increasing the risk of infection.

Non-invasive or even invasive ventilation airway clearance techniques may reduce the likelihood of respiratory complications.

We are going to talk about chest physio maneuvers and the use of these non-invasive techniques.

A peak cough flow of less than 270 litres per minute indicates the need for airway clearance. If the peak flows at any time measures less than 270 litres per minute, this means there is indication for airway clearance strategies.

Autonomic dysreflexia. Anyone with a lesion from T6 or above, sometimes lower, but mostly at T6, the thoracic vertebra number six and above are vulnerable or at risk of developing autonomic dysreflexia.

What will happen is uncontrolled sympathetic response to a trigger, which is a physiological stimulus below the level of injury, such as bladder distention, constipation, pressure injury, or skin injury can sometimes cause this sympathetic response and can lead to what we call autonomic dysreflexia.

It needs to be identified and managed as an emergency. It is an emergency. So, if it continues unmanaged, it can result in stroke or can lead to myocardial infarction and death. It is often found in the post acute phase.

As I said before, usually the blood pressure of the spinal cord injury patient lies between 90 and 110. If we see blood pressure around 110, we should not regard that as low blood pressure.

It is high for this spinal cord injury patient so Autonomic Dysreflexia needs immediate attention. And I will talk about the steps that we need to take.

What are the signs?

High blood pressure, bradycardia, flushed skin, and patient will complain of headache and congestion in the nose, sometimes they may vomit or feel unwell. Number one, position. We need to sit the patient up.

We need to position the patient upright, then remove tight clothing or any constricting objects, and then monitor heart rate and blood pressure every 2 to 5 minutes. Identify and remove triggers.

So, check for urine problems, bowel problems skin and check for infection. If the episode is not caused by a change in the bladder bowel function, then you need to do a full physical exam, look for pressure ulcers, or sometimes ingrowing toenails can cause that discomfort.

Pain is common in spinal cord injury. There are two types of pain, nociceptive and neuropathic.

Nociceptive is tissue damage, so pain caused from injury to the tissue creates muscle or bone pain, neuropathic pain is pain from damage or dysfunction of the nerve and usually comes with a burning sensation.

To treat pain, we use non-pharmacological measures, like positioning, splinting, or maintaining range of movement and then we use the WHO pyramid of analgesia.

We use simple analgesia first, and then we can go to specific or the specialised analgesia, such as gabapentin or pregabalin and baclofen can be used if the pain is associated with spasticity.

Some patients with a cervical spinal cord injury can have problems with communication and are unable to speak. If they cannot speak it does not mean that they have nothing to say, but we should always assess communication and look at their ability to communicate.

We should always establish a system for communication with the patient, whether that is yes or no or gesture communication and if they have had a tracheostomy, they can have a speaking valve.

We should always try to find a way to communicate with the patient and speech language and communication specialists are specialised in that; they can help us identify and train our staff around communication with the patient and put communication guidelines in place for each patient.

An E-Tran Board is also another source or another tool to aid communication.

Nutrition and swallowing. It is especially important to ensure that the patient's nutritional status is optimum, because that will aid recovery, wound prevention, wound healing and give them nutrients to continue with their physical exercise.

If the patient has a problem with swallowing or is at risk of this, they can be at risk of developing aspiration pneumonia, which can cause malnutrition and which also reduces the quality of life.

Dysphagia should be assessed on admission and there are tools to assess and screen for Dysphagia.

However, when the patient wants to eat or drink, we should make sure they maintain an upright position and we should reduce distraction.

Make sure that the patient is only focusing on one task, which is swallowing, and that they swallow one mouthful at a time, slowly.

Make sure that they swallow, and then that they take the second mouthful of food or water.

So early rehabilitation is important and essential for recovery, essential to making sure that the patient regains most or all the function that he or she lost. Initially in the ICU there is still a role for physical rehabilitation.

Maintaining the range of movement and chest and respiratory exercise is important. Maintaining the range of movement but also reducing tightness and spasticity.

In the sub-acute mobilisation, gradual elevation using tilt tables, strict blood pressure monitoring to manage orthostatic hypotension and introduction of abdominal binders so if the patient is

experiencing dizziness or feeling light-headed or has low blood pressure, we can use abdominal binders.

In the ward, transfer training using slide boards, wheelchair skills, training in using the wheelchair.

How to use a wheelchair. How to manoeuvre the wheelchair. How to master wheelchairs. So, it is especially important to give a spinal cord injury patient access and give them safe access to their house and access to the community.

That will involve upper limb exercise, upper limb strengthening and functional recovery in managing activities of daily living.

Usually, patients will keep this trauma to themselves, but there is also trauma to the place where there is conflict or to their family or loved ones so that can cause psychological trauma as well.

Psychologists are important in providing this care, however, if they are not available, you must always employ active listening to the patient, validate their grief, explain their injury, provide hope, but you need to be realistic about expectations and avoid blame or pathologising acute stress.

The most effective intervention is introducing them to someone who has a similar injury.

Peer support is important here to visit the place where the patient is or to talk to them, that is important.

Firas Sarhan (ISCoS)

Thank you very much indeed. Thank you to World Physiotherapy for the organisation, to ISCoS and the World Health Organization, for giving us the opportunity to share our experience and knowledge with others across the Middle East and beyond.

My session is going to be speaking about spinal cord injury in terms of nursing management.

That is a key focus of this presentation. Some of the areas will repeat what was mentioned in the first presentation, but I will try and look at it from a nursing perspective.

Nursing patients with spinal cord injury is quite a complex area, which requires quite a holistic approach to nursing - to care for and look at the individual's system in terms of bladder, bowel, ageing, managing pain and sexuality and other issues specific to spinal cord injury complications.

One role of the nurse is to assist medical staff and other therapists in terms of conducting the international standards for neurological classification and looking at sensory and motor testing examination following injury to establish and determine the type of injury.

Also to establish the spinal cord injury syndromes that the patient is experiencing, in terms of classification as well, whether this is an ASIA A, B, C, D or an E.

That will help us to determine whether our patient has a complete or incomplete injury.

The only way that could be established is by medical examination rectally, in terms of seeing whether there are involuntary contractions of the anal passage or anal sphincters, as the digit is going through it for examination.

This is the only way that we can establish whether our patient has a complete or incomplete injury.

We have so many syndromes that are based on the injury mechanism and whether this is a hyperflexion or hyperextension, or a burst fracture or a compression fracture, and they all depend on which area of the spinal cord has been damaged.

Each one will have a different clinical presentation and the key focus really for us is to know exactly what type of injury, what sort of syndrome, because as nurses, that will help us a lot in terms of planning the rehabilitation pathway and the rehabilitation care of that individual because each syndrome will come with a different clinical presentation.

On this slide, you can see extremely detailed information that you can look at in your own time.

One of the key things that we need to focus on is logrolling. Log-rolling is quite important within the nursing process in terms of trying to safely transfer your patient, safe manoeuvering of your patient to prevent any further complications and further deterioration of their neurological condition, or neurological levels.

I have two videos here which you can watch, and you can really examine and see exactly how these log-rolls are being performed.

But the key thing is immobilisation for the spine, stabilisation of the spine.

Avoid sitting your patient up and avoiding them twisting because that could cause further deterioration and damage to their spine.

One of the key things about the neurological bowel is one of the key problems and key complications of spinal cord injury.

That is due to the loss of nerve control of the anal sphincters, internal and external sphincters.

There are two types of neurological bowels. If your injury is L1 or T12 and above that means you have an areflexic bowel.

If you have a T12 or L1 below, that will have a flaccid bowel, and both will have two completely different managements and two different implications for the individual's life.

And the key thing to focus on here is you need to maintain quality of life for that individual, as well as preventing any complications such as constipation or faecal incontinence.

Now with reflexic bowel you need to establish a routine, a regime for bowel management. And that usually starts 12 hours or 8 hours before the time of bowel evacuation.

By giving laxatives to soften the stool and by inserting a couple of glycerine suppositories. We are using the remaining reflexes within the sphincters to allow emptying of the bowel.

And again, you need to be trying to maintain type four of the Bristol stool scale if that is possible.

This is the areflexic bowel management, the flowchart we use within the National Spinal Centre at Stoke Mandeville Hospital.

As I mentioned earlier on, you need to stimulate the gastrocolic reflex by giving your patient drinks, mainly hot drinks 20 to 30 minutes before you start bowel evacuation and digital examination that could be establishing a regime either daily or every other day, depending on the patient's eating habits and the patient's social life and social interaction.

The same thing with flaccid bowels is that there is higher risk of losing anal tone, and that means that the risk of incontinence is much higher.

There are also more complications in terms of potential prolapsing of the anal passage, the formation of haemorrhoids, formation of anal tears.

As a result of this there could be constipation or could be faecal incontinence.

And the key thing would be for you to really try and maintain as much as possible formed stools which are type three within the Bristol Scale.

Here the key important thing to mention is not to insert any suppositories, because there is no reflex in terms of the sphincter. It is absent.

And the purpose of the suppositories is to try to stimulate the sphincter, so in this case, this would be pointless.

And again, you follow the same process in terms of applying the gastrocolic reflex by giving fluids or warm food 20 to 30 minutes before the digital removal of faeces.

You need to establish that regime with this individual, whether that will be daily or every other day.

As we mentioned, there is no need to use suppositories with this type of bowel management. The same thing applies for the bladder.

The bladder, if the injury is T12 or L1 and below will be a flaccid bladder or a reflexic bladder, which means that the sphincters will lose tone as well as the bladder.

In the early phase of spinal cord injury management, we need to ensure that we are inserting a urethral catheter until the patient has recovered from the spinal shock, and that could be within days post-spinal injury.

Once the patient starts recovering from the spinal shock, you will apply a flip flow. And that means you are allowing the bladder to act and to function as a reservoir of urine.

And again, once the patient is recovering from the spinal shock and going back into long-term management, then there will be an option there for the patient to restart use, based on their social life and their hand function.

You need to conduct a urodynamic to establish the pressure within the bladder and the kidneys before you go into long-term management.

Things you might be considering for bladder management are urethral catheter, a suprapubic catheter or self-intermittent catheterisation these are the most common methods for managing the bladder following spinal cord injury.

The key thing for bladder management is to ensure that you are avoiding retention, maintaining capacity, and maintaining the storage of the bladder, avoiding incontinence, avoiding complications, and keeping the patient safe.

These types of complications, like renal calculi or reflux of the urine from the bladder back into the kidneys could cause damage.

With flaccid bladder, as we mentioned, sometimes the individual could pass urine spontaneously, but as a result you need to ensure that if the patient has less than 100ml of residual urine in the bladder, you use some form of catheterisation.

For the bladder, it is quite important to ensure that we are turning the patient regularly, especially if they have a urethral catheter, to prevent the formation of sediments within the base of the bladder, and to avoid the formation of that eggshell shape around the catheter balloon.

Doing three hourly turns is quite important for the patient. The other key problem and key issue is skin.

The skin is quite important in terms of the acute phase, and the long-term complications and prevention.

As a nurse, you need to constantly be thinking about the skin in terms of assessing the skin, looking to see if there is any red marks, ensuring that the skin is nice and dry, there is no moisture.

Your patient is not incontinent.

Your patient is being turned every three hours and during each turn you are examining and checking the skin thoroughly for any red marks, whether it is blanching or non-blanching, because this is quite important.

And if the patient has any sign of red marks on their sacrum, heels, or occiput it is important that we keep them on bedrest until the marks disappear.

You need to ask yourself and seek help from other tissue viability nurses or from the medic. And ask, "are we using the right mattress to prevent pressure ulcer formation?"

These are real examples recently that we nursed and looked after individuals with this type of very severe pressure ulcers.

Having a pressure ulcer means that the patient is going to be delayed in terms of starting their rehabilitation programme. And that delay could be up to six months if not more.

The chance of developing septicemia is extremely high and developing other complications linked to bedrest could be possible with this type of complication or pressure ulcers.

Foot care is essential following spinal cord injury because of the dryness of the tissue and the skin; nail care is essential.

We need to keep an eye and to observe this. To do it, you can moisten their feet and remove all the dry skin.

If you do that on a regular basis, patients will not have this type of nail or foot complications. There are a lot of complications associated with spinal cord injury.

In terms of C3,4,5 keep the diaphragm alive so any injury above C3 will have airway compromise and respiratory failure and your patient might require ventilation or even below that level sometimes the loss of intercostal muscles and abdominal muscles could also affect breathing and therefore the formulation of secretions.

Therefore, as nurses it is quite important that you turn your patient three hourly to allow movement of secretions and postural drainage of secretions. That is quite essential.

And assessing airway entry to both lungs is also essential to measure your patient's oxygen saturation. Also, it is important to determine whether your patient requires oxygen therapy or any further treatment.

As mentioned earlier on, one of the key complications of spinal cord injury is autonomic dysreflexia.

If your injury is T6 and above, you will be at risk of developing autonomic dysreflexia. And that is due to the lack of communication between the sympathetic and the parasympathetic systems.

The key causes of dysreflexia are bladder, followed by bowels, ingrowing toenails, pressure ulcers, or any infection.

On this slide, you can review in your own time, it looks at the way you can manage autonomic dysreflexia.

And again, you could do it in terms of sitting your patient upright, examining their bladder and bowels, and if there are no causes there and it continues to happen, then you can go onto pharmaceutical treatment in terms of offering 5 to 10mg of sublingual nifedipine.

A patient with a spinal cord injury, in the acute phase and long term as well, is at risk of developing deep vein thrombosis due to the vasodilation below the level of injury and that is the pooling of blood within the lower veins which affects the circulation.

You need to be looking at whether you need to start your patient on short term or long-term anticoagulation, applying of TED stockings and other measures to prevent DVT.

In the first hour, the initial mobilisation of spinal cord injury patients, they could have orthostatic hypotension.

The way to tackle this or address this is by allowing the patient to be in a sitting position or in bed, at least 20 to 30 minutes before being mobilised, applying the stockings or abdominal binder.

You might use medication to help the vasoconstriction below the level of injury, to ensure that their blood pressure will not drop.

This presentation so far has focussed on the physical side of spinal cord injury, but we need to think of the emotions that come with spinal cord injury.

Spinal cord injury is a complex injury that leaves the individual with devastating consequences and that requires us to allow time for the patient to understand their injury, educate them about

their injury and the consequences of it, and then offer help and support using psychologists or psychiatrists as required and as needed.

These are the types of complications that spinal cord injury individuals could have, some of them have been highlighted earlier and others you can review in terms of the musculoskeletal system, they are at risk of osteoprorotic fractures.

They could have complications of spasticity, neuropathic pain, gastrointestinal problems in terms of the occasional development of acute abdominal pain, constipation, or fecal impactions.

So, these are the things that you need to be aware of, especially if you are making a follow-up plan for your patient. We follow up every six months.

Annually they could visit our clinic or the outpatient clinic. They have free telephone access, they can contact our staff for support or to refer them to their local hospitals or GP for further support and management, if needed.

Eric Wertz (Humanity & Inclusion)

For my talk, I will try to explain a bit about essential therapy considerations for spinal cord injury, but more in a context where the environment is austere and probably where the professionals or the rehab workforce will not be surrounded by high technology or they are working more at community level or in displacement centres than in a rehabilitation centre.

The former speakers already talked about the different resources that you can consult, but of course I will provide them again and they will be provided again at the end of this presentation.

But just a slide to make you familiar with them so you do not forget them. In terms of various levels of injury that were explained by the former speakers, I will talk more about advice depending on various levels of injury.

The first one is the high lesions where there is not much function or mobility remaining in the spinal cord, but the focus should be on pertaining the cardiovascular status of that patient, mainly their respiratory capacity and for this there are specific exercises for tetraplegia at C4 or C5 where the excretions need to be managed with active exercises, respiratory exercises either with a bubble bottle or with an incentive spirometry.

What is also important to know is that there will be a very heavy muscle imbalance at the level of injury that needs to be worked on and where retractions and flexion need to be managed with positioning or stretching exercises.

The remaining force in terms of extension needs to be reinforced with exercises and a therapy approach.

The positioning here is very important knowing that in the settings where we will see these people, we will need specific equipment that I will speak further about, but the specific bed positioning needs to be a position where the secretions can be evacuated and where you can change their position every two hours and for this to be taught to the family members and the caretakers of the person with spinal cord injury.

With the proper handling techniques that were explained by the other speakers, the patient can be moved safely. For tetraplegia C6 and C7, we see that in terms of mobility, we will have an

extension and a certain muscle tension that allows the patient to do extension and managing specific phases of wheelchair pushing.

This early rehabilitation is also accompanied by being able to transfer the patient from their wheelchair to another seat.

Here they might need to have support with pushing, using pushing gloves, but also to be stable in their manual wheelchair.

As I explain here, the transfer is especially important with a transfer board where the patient can be transferred from a bed to their wheelchair or to a toilet chair.

There are specific steps that need to be undertaken to make it as safe as possible. Most therapists are quite familiar with how this can be done in a safe way.

In terms of function of the upper limbs and the arms more specifically, when we have high lesions, we know that you can prepare the patient so that their grip in terms of their hands can be rehabilitated. It is called a tenodesis grip.

And this tenodesis grip is going to create, thanks to their remaining extension of the wrist, a kind of passive flexion of the fingers, and that passive flexion of the fingers will be able to grasp specific objects.

This grasping technique can be used for their functional future in terms of activities of daily living and upper limb function. Now to set up this tenodesis process, there is a careful examination first that needs to be done.

There needs to be preparation by the therapists to prepare this movement and to prepare the different exercises with the patient, and there needs to be a very temporary positioning of the upper limb and the hand, so that these retractions at muscle level for deflection can be maintained and have enough tension to sustain the grasp of the upper limb.

This leads to interesting applications for the upper limb if we have assistive technology that helps the patient to grasp objects and objects that can be functional for their daily living activities such as eating, grooming, and taking care of themself with their upper limbs.

The considerations for mobilising and active self-care are mainly to do with specific settings and where a patient needs to become independent as quickly as possible, that they can check their skin by themself, thanks to specific manipulations and specific hand function where they can check, for instance, their skin by using a mirror, but also by controlling checking for pressure wounds and as we will see later, looking at how they can prevent themselves from getting pressure ulcers.

Wheelchair use is particularly important to do this safely in safe conditions, meaning that footrests, armrests, and wheelchairs need to have basic features that can be functional for the patient and make sure that the caretaker is also well educated and well informed about how to use that wheelchair correctly.

In terms of lower limb paraplegia and supported standing, here we see already we have other levels of injury. It is important to remember that standing is a particularly important activity for daily living activities, but it also has a particularly beneficial effect in terms of muscle tone evolution throughout the body, meaning that standing needs to be done in safe conditions.

It can be reproduced at home, but only with the right education in terms of the caretakers who can perform this at home, and it is something that therapists need to be teaching the patients about what they are seeing or that they are seeing at the rehab centre.

We can also reproduce these activities at home, if the caretaker receives good advice and has a good understanding of the benefits of a standing position, and secondly to be able to avoid complications, due to resting all the time.

Gait training, if it is possible and if it can be measured and that the potential of gait is there, is important. It also needs to be completed with safe equipment, such as parallel bars or reproducing these parallel bars, in the home setting of the person.

You need to ensure that all the different joints are stable and they need to be accompanied by the specific techniques of the therapist.

It is important as well to combine this early rehabilitation gait training with wheelchair use, so that short distances or mobility within the house perimeter is possible by standing with the proper orthotics, or the callipers that would be needed to sustain a good standing position.

But on the other hand, for mid- and long-term distances, the wheelchair would be better advised for function or for community ambulation.

Drop foot is a complication that we see very often when patients are seen after a while in long-term settings.

It is important that you can manufacture, sometimes with very simple materials, to ensure that the dorsiflexion is always maintained because that dorsiflexion will also allow the patient in the mid and the long term to do walking exercises, because once that dorsiflexion is not present anymore, there is a big risk that they will not be able to exercise their ambulation that is still remaining in their lower limb functions.

Pressure relief. As we have seen and were explained by the former speakers, it is especially important in terms of the caretakers when patients need to look at it and that the health workers as well need to follow up on skin problems.

However, pressure relief itself needs to be taught, needs to be educated to the patient, and explained to the caretaker.

We see that pressure relief can also be done sitting in the wheelchair, just with simple exercises of bending over or bending to the side so that pressure relief on the seat can be managed.

These are also exercises that can be very simply explained in any setting to a patient or their caretaker to prevent these skin problems.

Cushions are an important feature. We know that cushions are available worldwide in different formats.

First, they need to be delivered when a wheelchair is delivered and one does not come before the other, because we know it leads to a lot of complications in terms of skin care.

But a cushion has a certain shape and depending on its shape, it creates a depression in different levels of the seat and when the cushion is purchased, we should see that the assistive

technology is of good quality first and secondly that the cushion will be delivered together with the wheelchair, to have an optimal function of preventing pressure ulcers.

The cushion cover is also important in terms of hygiene because that cover can be taken off to be washed and maintained.

We know that sometimes in providing the cushions, the covers are not always available, so it is particularly important to make sure that that cover is also present in the delivery.

In terms of adaptations, once the person goes home or goes back home to their environment, we know that when we talk about the theme of conflict settings that this environment is not always easy.

There are minimum adjustments that need to be done in the surroundings in the living space where the person is living and going back to.

There needs to be adaptations in terms of toileting and being able to have basic sanitary conditions that are accessible but also easy to use for the caretakers for functions which the patient needs help with as well.

So, it means that if you talk about a long return home, it needs to be accompanied by the necessary information on how to make it accessible at a minimum for a person with spinal cord injury and to facilitate the care that the caretakers will have to provide for that person.

My last part will discuss more concrete issues because I think we have seen different introductions that are very structured on how spinal cord injury should be managed.

Now, the reality is that in recent conflicts in recent settings we saw that this reality is not always present when we think about rehabilitation centres that are not accessible financially or even functionally, or the waiting lists are too long for people to have access to that specialised care.

The reality is that in conflict settings, we see the patients in the community, and they will not be surrounded by all the professionals that are necessary to have the best rehabilitation.

What would my advice be for a therapist confronted with somebody who is displaced?

The first thing would be to see what the status of that patient is. We have seen the different tools of classification of SCI. The MAC SCI scale is a tool that is quicker to administer, and you will have a quicker understanding of the classification for that patient now that you are seeing them.

The second point is to understand the patient's functional status.

The functional status means you must measure what bladder and bowel capacity they have, what mobility remains, what is their level of independence in terms of ADLs and for this, the SCIM scale is an incredibly useful tool that can be administered.

You can ask the patient to perform certain movements, and then you will have a score that gives them a functional level.

And from that functional level, you will be able to plan and look at what type of exercises they need.

A third examination that is also particularly important is what the patient's risks are, risks of complication.

When you see a patient three years, four years after their injury in displacement, there is a full set of risks that they are facing.

We can list them very easily, but thanks to a questionnaire, which is the SCI-SCS, you could go through all the different risks, and you can rate each risk because the patient will say if it is a problem for them, or you can observe this on the patient, if the risk and the complaint is there.

And from there, you are going to prioritise the priorities that these people need before they go home, and the risks of complications that they face when they go home after their session, after the rehabilitation centre or after the displacement.

Once these measures are performed, you will confirm that functional status.

You can select the main functional priorities for the patient. Well, not only for the patient, but also looking at how the caretaker can find the best options to assist the patient so that they know when they are going back in displacement or when they are going back to a home that is maybe not prepared, that their caretaker is well informed about all the different function levels that the patient still has, and the functions that the caretaker will have to assist with.

With the risk scale, you will be able to look at what priorities can be addressed, maybe that don't need to be addressed directly, but that consultations or follow ups would be needed in 1 or 2 months according to the different risks of complications that you will discover when you are doing the risk scale.

Once that care is delivered, we know all the advice in terms of therapy, that is needed in terms of recovering the function and assisting function, but basic mobility advice and safe bedside handling and transfers, moving around with safe, accessible perimeters at the displacement dwelling is especially important.

You need to have preventive information for the main complications that are observed and at risk of becoming more critical during the displacement episode.

There is an entire range of personal care by teaching the safe use of assistive technology. And here you will see there is a list of specific assistive technology that should always be available when we are working in emergencies and I think the basic lists that have been developed here, and I think for example in Ukraine, these packages are already a very good basic approach to restore the minimum mobility for a person with spinal cord injury.

This ranges from having a good wheelchair, a transfer board, but also a toilet chair and other devices in terms of management of bladder and bowel that will need to be there for the patient before they go home.

The examples that I witnessed when working in these specific settings were that skin care was always a point that came out in terms of advice to give to the patients.

Knowing the location of it, teaching seat relief in the wheelchair and providing the specific assistive technology to work on pressure relief. The second issue was the bladder and the bowel.

And here you need to give specific information to the patient and the caretaker about how they can manage it better but also looking at how bladder and bowel administration can be facilitated with the help of assistive technology in terms of a toilet chair, specific mattresses or specific equipment that is needed.

The mobility and the handling also needs to always be reviewed and updated together with the capacity that the patient still has in terms of their functional status, but also how the caretaker can better understand better what the patient is able to do to keep him still active and that applies to the different transfers, but also assisting the patient in daily living activities.

Acute complications and needed referrals. With the tool that was used in terms of the Secondary complications questionnaire, you could prioritise all the different complications that you have seen and understand why there is an acute risk in terms of infections.

Either it is skin infection because of pressure ulcers or bladder and bowel infections, so you will need to make a list of what kind of referral would be a priority, to get medical advice in these specific settings so that the patient could have the best care possible.

The other issues are to do with pain. And here we know that pain specialists can opt for this or give the patient specific medication to have a better quality of life in terms of mobility.

The last one is particularly important because there is provision of mobility products in emergencies that I mentioned earlier, they need to be available and well explained to the caretaker and the patient before they go home to another setting.

In conclusion, we know that the essential therapy considerations for the local rehabilitation workforce involve strategies of capacity building for preparedness as well for the professionals and the therapy professionals.

And that means you need to have tools that can make a quick assessment of the needs of the patient, tools that measure functional recovery status and the identification of that functional status of the patient, so that the exercises and the advice can be well prepared according to the level of functional status.

There needs to be provision of assistive products that can assist the patient's daily living activities and their caretakers as well.

So, I think just to conclude, it is critical for spinal cord injury care to be delivered as a multidisciplinary team because of the different body systems that are involved and the secondary complications that if they are not managed can be catastrophic for an individual.

Jo Armstrong (ISCoS)

The planning for discharge is important to be done as soon as somebody enters any kind of rehabilitation.

So, think about where they are going and what the essential pieces of equipment are for discharge.

To give you an example, if somebody is going into tented accommodation with no or an unstable electricity supply, air mattresses are obviously not going to be appropriate. We have some resources to highlight for you.

The early rehab in conflict has a chapter on spinal cord injury.

We have also got the minimum standards for spinal cord injury, the WHO documents there for medical teams.

In addition, some of the slides that Eric has presented are drawn from the training in assistive products, the TAP resources.

These are freely available through the WHO, the World Health Organization website, and they have some excellent training around use of assistive devices and transfer techniques.

There is also some free online training through the ISCoS' website, which is the Elearn spinal cord injury that has training for specific healthcare professionals, whether you are a doctor, a peer educator, a nurse, or a therapist.

So, within different specific professions and set out on a modular basis with a certificate available for completion. And then we have the Asia Foundation.

The third one there provides comprehensive training in the classification of spinal cord injury.

And if there are any healthcare workers from Gaza or Lebanon, they can access that training at no cost by emailing the Asia Foundation for that.

As part of that, there is also an online calculator so you can feed in your results from completing that and that will give you the neurological level of injury for an individual.

This takes us into the questions, and I am going to start off with a question we have about communicating prognosis.

Doctor Elmalik, we have a question here mentioning how difficult it can be to understand what prognosis is, if somebody may be changing from an Asia A to an Asia B over time and when should a clinician accurately estimate and communicate prognosis to patients.

Dr Aladin Elmalik

Thank you Jo. Thank you so much everyone.

So, it is not an easy path, but what we need to make sure is that number one, we provide the correct information.

We should always try to give realistic expectations to the patient. It is a gradual conversation. What we always try to do is to differentiate between hope and expectation.

We always hope that the patient will regain the maximum recovery. But there is an expectation, our expectation that they might not.

If you do it this way, I think you will get away from the embarrassment between wanting to be kind and nice to the family and the patient but also wanting to provide the appropriate information. You always say that.

And to answer your question, the recovery is something we can predict, but we cannot be certain of. We predict this patient, for example, in six weeks, three months may be able to do this.

This is why, according to the available data, for example, spinal cord injuries, high thoracic will be able to use wheelchair and incomplete will be able to be independent using it.

But you provide this based on the factual path we have. However, there might be patients who might recover faster, and might go further than that.

Recovery, as I always find, is not a straight line, so they recover today, tomorrow, then they are impacted by fatigue, by something like a gut infection, anything that can delay their progress as well.

So, to conclude, you need to be factual, but also you need to provide hope for the patient.

Jo Armstrong

Thank you for that.

One of the other things we have certainly found research-wise is that an insky conducted after 30 days gives a more accurate prognosis than one done in the first couple of days.

We have a question about spinal cord injury bowel management. Is there any difference for paediatric or adolescents in terms of bowel and bladder management?

Colleen, are you happy to answer that?

Colleen O'Connell

Sure. In general, there is no difference other than in terms of size, other than incredibly young children less than two years of age, do not need catheterisation because they have not yet developed sphincters.

And for any of you that have had infants and children, you know they are already incontinent.

So, though above age two, you still have the same approaches for bowel and bladder management.

Jo Armstrong

Thank you. We have a question about positioning and pressure relief. The practical accepted standard in conflict settings.

So, a pressure injury is obviously an elevated risk in conflict settings and if somebody is mobilising in a wheelchair, a pressure relief cushion is an essential component.

We would then recommend that somebody conducts pressure relief for two minutes every hour.

So that might be through a forward leaning technique or a side leaning technique, but I would check by putting my hands under the ischial to check that they are properly offset so that they are de-weighted.

To make sure that that is effective. If somebody is lying, whether they are on an air or a foam mattress, it is important that they have a regular position change through side lying or potentially prone if they can cope with that.

And there are some great images of the assistive training, the TAP resources to support that.

Okay. We have time for one last question. If people need to drop off at the end of the time here, the five of us are willing to continue to answer the questions. And that will then be available in the recording that will be made.

And as well, the leadership for these webinars will be having some discussions about certificates. And so there will be a follow-up to answer that once the organisers and leadership have finalized this.

Great. So, we had a question, I think, Erica, you were happy to answer about people who were interested in working in conflict situations.

Erica, are you on the call to be able to answer that?

Erica Bleakley (WHO)

I am on the call. I did answer it in text, but I am happy to cover that again. Thanks, Jo.

So, great if people are interested, the rehabilitation and emergencies workforce always needs bolstering so probably the most straightforward way would be to look at the websites of some of the major organisations that provide rehabilitation in emergencies.

Most commonly these are Médecins Sans Frontieres or MSF, Doctors Without Borders, the International Committee of the Red cross, ICRC and Humanity & Inclusion, or HI.

If you go to their websites, you can find information about how to join those organisations and open positions.

You could also consider becoming part of an emergency medical team. Your national government may have emergency medical teams so I would suggest trying to find out about that and see if you can become a member and ask them if they have rehabilitation capabilities.

And if not, then ask them why not. But also, UK Med are a team that is an NGO that has an emergency medical team, including a specialised team for rehabilitation. So, they are also an organisation you could look at.

And I know that if you are a spinal specialist, there is an organisation called Norwac that also has a specialised rehabilitation team for emergency medical teams.

Jo Armstrong

Thank you Erica. We have a question about alternative feeding to be considered in the case of spinal cord injury or only in the case of co-morbidities and about swallowing and positioning during feeding.

Colleen, are you happy to answer that one?

Colleen O'Connell

Sure. Often first thing is to identify what the reason for swallowing impairment is and then how you are going to manage that based on the cause.

For many patients with cervical injuries who may be in a collar or may have had some swelling or involvement of their oesophagus from the trauma or from the post-operative or they are in a fixation, they cannot easily do the chin tuck and position.

You want to avoid hyperextension of the neck because it is harder to swallow.

See if you can allow it to be in a slightly chin tucked position and upright for feeding, using smaller amounts, single textures, and of a thickened like honey or nectar or pudding thickness, this can help facilitate the swallow.

You can even thicken liquids with a bit of cornstarch or sometimes tapioca, and that can help with swallowing as well.

Jo Armstrong

Thank you. We have a question, Feras, for you about rehab strategies available to improve bowel control in an individual with an A reflexic bowel.

Feras Sarhan

The key thing to consider here is we need to wait until the patient is recovering from the spinal shock, and that will give us an indication in terms of using the remaining function of the sphincters.

Based on that we will be able to create an effective bowel regime, whether that is daily or managed every other day based on the results that we see.

Documenting the results, I think, is quite important and essential in terms of bowel management, because that will give us an indicator in terms of what pathway we want to choose for that patient, whether that's daily or alternate days for bowel management.

Jo Armstrong

Thank you. We have a question about tilt table standing for a tetraplegia patient.

So, standing, we would say, is desirable for a spinal cord individual with spinal cord injury, but not essential.

There are other ways to maintain their joint range of movement. And the evidence is that it is not necessarily highly effective to maintain bone density.

One of the considerations before standing is that somebody can tolerate sitting out, because it is a much bigger challenge for their blood pressure and for orthostatic hypotension.

So if you were to look at standing an individual with Tetraplegia for the first time, the prerequisites would be that they are able to tolerate sitting out for a few hours, potentially that they have an abdominal binder in situ and that you have some options of monitoring their blood pressure because you're trying to mitigate against the blood pressure dropping very low.

You would go up gradually and monitor somebody's symptoms. You may do that by looking and seeing if they can keep talking to you, or you may do that by continuous blood pressure monitoring.

And if somebody is feeling unwell, you would lie them back flat.

But if you can, you would aim to achieve an upright standing regime with a tilt table and then see if it is possible to progress onto a standing frame with chest, pelvic.

And knee support is involved in that if that is available.

Okay. We have a question about physiotherapy practice, the appropriate time to introduce and address patient sexual activity, gender, and sexual function during rehab.

Maybe if Colleen and Doctor Elmalik want to start off with answering that.

Colleen O'Connell

Sure. I am happy to. It is an area that I do feel quite strongly, is an extremely sensitive area and an especially key area for a person's quality of life, their identity, and a lot of the time their well-being and emotional adjustment to their injury.

It is the entire team's role to participate in discussing sexual health concerns.

Very importantly, though, before those discussions take place, it is that the team is aware of and understands the injury level and severity by doing the Inski examination, because that will help guide how and what you tell that individual about what is biologically possible.

And that becomes particularly important, particularly with male patients as it pertains to their sexual function as well as their ability and how they would be able to have children.

So once that information is known, it is the member of the team who is the most comfortable and knowledgeable about that area, typically, it is the physician or the nurse who may address those questions, but other team members will be important.

Psychology support is needed for emotional adjustments, which includes body image.

The occupational therapist helps with positioning devices that may be required.

The physiotherapist may help with regards to mobility options that are required for some activities. The speech and language pathologist in terms of means of communication. So, it really is a team approach.

The important thing too is for every individual; you need to ask permission to discuss the topic.

So, it happens when that individual becomes ready and they give permission to the health professional to start having that conversation.

Eric Wertz

And I would just add, it is particularly important to talk to both genders, there is a lot of focus, I think, on male needs, but of course, we need to also look at the issue of the female position in this - infertility and what is expected, of course.

Dr Aladin Elmalid

Because this is one of our major topics and therefore, we educate our patients about sexuality, becoming a father or becoming a mother, motherhood and so on.

This is important and essential. And we tend to do that, predischarge from the spinal unit, and we offer them all the facilities that we can in terms of other medication or therapy, etc., within a safe environment.

So, in our centre, we touched on the topic of sexuality for the first time when the consultant meets the patient. So the first point that the registrar or the trainee sees the patient and admits them, then the consultant when they come to the ward and see the patient for the first time, after everyone leaves, they say to the patient and say, 'look, if you want to talk about this, I'm happy to provide information.

I'm happy to come back to you at a time that suits you, and you can invite whoever you want, if you have a partner or if you have anyone you want to invite, you can invite them and we will talk about anything about sexuality, about relationships, intimacy and sexual function and also fertility.

And sometimes we refer them for sexual counselling as well. So, this is, I think, the last point on how to approach it.

This is how we approach it in our centre, which everyone says the same thing, but we are approaching it in this way.

Jo Armstrong

That is extremely helpful. Thank you, Dr Elmalik, for giving the patients understanding that it is something that can be discussed.

And then when they are ready to do that there's availability to ask those questions.

We have now got a question about us as health care professionals, sometimes it can be quite heavy emotionally to support individuals with navigating spinal cord injury, particularly if a multidisciplinary team does not surround you.

And how can we manage our own wellbeing through that?

One strong option for supporting individuals with spinal cord injuries, peer support, that we have not talked in much depth about today.

So other individuals who are managing to live well with their spinal cord injury and are a little bit further along in their journey are often a useful way to support individuals and to role model that, which can reduce some of the burden for the health care professionals and be a strong asset to any team.

I think for all of us as healthcare professionals, self-care is important, so having some time away from the workplace and knowing what is restorative.

Often being outside, but making sure that you have people, colleagues, that you can talk to about the things that are difficult and challenging, which we all have and that you are able to take some time to look after yourself.

Does anyone else want to add to that?

Dr Aladin Elmalik

I think you have mentioned something especially important, caring for a patient with a spinal cord injury or any neurological deficit, throughout rehabilitation is a multidisciplinary team approach.

There is not one person. It is not one team. So, we need to be aware of that.

We need to work together. We need to help each other.

In our centre, and I am sure this is the same in all the centres, we always have an early family meeting.

Family meeting means that you can explain to the patient and their family what the nature of the injury is and then you set goals and then you have a mid-term or mid-stay family meeting.

And you might need another family meeting. It is particularly important to get the patient involved.

It has patient-centered care, and the patient needs to lead that and to lead their care for themselves.

Jo Armstrong

Great. Okay. I think we have answered the questions that are there.

This is very much an overview today so not fully in depth but thank you everybody who has contributed as a presenter and to everybody who has joined the webinar, we have enjoyed sharing our knowledge.

Please do have a look at the resources that we have signposted to you for further help.

Thank you.

If you require this transcript in an alternative accessible format, please contact World Physiotherapy.