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ESPEN Endorsed Recommendation

Considerations for the management of home parenteral nutrition during the SARS-CoV-2 pandemic: A position paper from the Home Artificial Nutrition and Chronic Intestinal Failure Special Interest Group of ESPEN



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SUMMARY

The management of patients with chronic intestinal failure requiring home parenteral nutrition has been and will continue to be impaired during the SARS-CoV-2 pandemic. Multidisciplinary intestinal failure teams may have to adapt their clinical approaches to home care, outpatient care as well as hospital admission and discharge in order to keep this vulnerable group of patients as safe and well as possible during the unprecedented challenges that countries are facing during the pandemic. Equally, it is important that expert advice from intestinal failure teams is available when home parenteral nutrition (HPN)-dependent patients require admission with SARS-CoV-2 infection. The Home Artificial Nutrition & Chronic Intestinal Failure Special Interest Group of the European Society for Clinical Nutrition and Metabolism (ESPEN) has developed a position paper to outline areas for intestinal failure teams to consider when managing patients with chronic intestinal failure during the SARS-CoV-2 pandemic.

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1. Introduction

This position paper has been developed by the Home Artificial Nutrition & Chronic Intestinal Failure Special Interest Group of ESPEN. The group included gastroenterologists, surgeons, endocrinologists and anaesthetists, with long-term expertise in chronic intestinal failure (CIF) and home parenteral nutrition (HPN) as well as a patient. The aim of the position paper is to highlight areas of

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needs that teams caring for HPN-dependent patients should consider during the Coronavirus (SARS-CoV-2) crisis.

2. Background

Patients with chronic (type 3) intestinal failure (CIF) require long term home HPN to sustain life [8,10]. CIF care is often centralised regionally or nationally in different countries in order to concentrate clinical expertise and improve patient outcomes [11]. This care is best delivered by a multi-disciplinary IF team [8] with routine follow-up consisting of laboratory as well as in-person assessment. During the SARS-CoV-2 pandemic, patients' ability to travel to the CIF (or HPN) centre will be significantly impacted, leading to increased reliance on the individual's local hospital for acute care. Patients may also find it difficult to attend for laboratory monitoring, as well as routine clinical follow-up at the CIF centre. Furthermore, the need for critical care and other hospital beds to care for patients with SARS-CoV-2 infection, may impair the ability of CIF centres to admit new patients referred from other hospitals for establishment of HPN. Additionally, CIF multidisciplinary teams may not remain functional during such a healthcare crisis due to a combination of factors including the ill-health of key team members as well as the need to utilise their generic medical and nursing skills to support acute hospital wards or intensive care departments. Similarly, home care pharmacy and nursing services for HPN administration may be impacted, placing a significant risk to those requiring PN for health and survival.

3. Considerations for home parenteral nutrition management

3.1. Multidisciplinary intestinal failure team

The resilience of a multi-disciplinary team can be enhanced by encouraging cross-skilling between disciplines, where safe and appropriate. For example, physicians can be appraised in some dietetic approaches; clinicians can gain an understanding of the administrative mechanisms required for HPN discharge. Inter-hospital cooperation to share relevant expertise and CIF protocols will also help maintain services for teams most affected by the crisis.

3.2. Home care

The government advised approach to social distancing or self-isolation varies between countries for those with and without underlying health issues. Given the associated co-morbidity, it is generally advisable that HPN-dependent patients self-isolate during the pandemic for the period of time as advised by the individual country's government and national clinical bodies [6].

Health care workers involved in HPN administration should follow governmental advice in regards to the use of personal protective equipment when visiting patients' homes. The IF team should ensure that all home care teams are aware of the SARS-CoV-2 risk to HPN-dependent patients to ensure appropriate protective measures are taken.

Given the potential restrictions that may impact home care nursing support, as well as the need to reduce patient contact, IF teams should encourage patients and family members to train to self-administer PN, wherever possible. This may involve rapid training regimens if safe and feasible, with the risk of infection potentially reduced by the concomitant use of antimicrobial locks [12]. Alternatively, if training is not feasible, patients may need to consider the possibility of 24-h PN connection to reduce patient exposure from nursing visits, which may become a limited resource

if home care nursing services are increasingly stretched during the pandemic.

The relative use of pre-prepared multi-chamber versus tailor-made compounded PN varies between different countries [9]. Any restrictions on pharmacy aseptic facilities during the SARS-CoV-2 pandemic may place a risk to services largely reliant on PN compounding, such that CIF teams should have readiness plans in place for the use of pre-prepared multi-chamber PN if necessary and if safe for the individual patient. Similarly, services should ensure that patients have adequate supplies of ancillary equipment required for PN administration at home. CIF teams should also be aware of the potential lack of ancillary equipment required for HPN administration (e.g. gloves, hydroalcoholic solutions etc.) and address supply chains wherever possible, with interim necessary adjustments to HPN protocols where considered safe. Additionally, if clinically appropriate, CIF teams should ensure that patients have an adequate reserve supply of intravenous fluids in case of any delay in PN delivery.

During the pandemic, CIF teams should continue to collect data on the occurrence of HPN-related complications, including catheter-related and metabolic or nutritional adverse events.

3.3. Outpatient care

Routine, non-essential face-to-face consultations should be deferred during the SARS-CoV-2 pandemic. The use of telemedicine has been found to be effective in CIF care [4] and should be implemented to follow-up HPN-dependent patients wherever possible in order to avoid travel to hospital and reduce patient and public exposure. Patients should also be aware of the contact details of the IF nursing team to ensure adequate ad-hoc support is provided when required.

The follow-up of HPN-dependent patients with underlying malignancy by the oncology team should be continued independent of the IF team, to ensure any cancer-related issues receive the appropriate specialist attention. For those patients with advanced malignancy, palliative care teams already planned to attend the patient's home may be able to help monitor some aspects of fluid and nutritional care and provide feedback to the CIF team for any necessary intervention.

Blood monitoring remains an important part of CIF management, although the frequency and nature of tests may need to be modified during the pandemic to reduce travel to and from hospital. The need for routine blood monitoring should be reviewed for all patients, such that only those investigations deemed clinically necessary by the IF team should be performed. Ideally, such blood monitoring should take place either at or close to the patient's home to minimise travel, as determined by the availability of community services.

Other routine hospital investigations (e.g. radiology tests) should be deferred during the SARS-CoV-2 pandemic, where deemed to be non-urgent by the IF team. Investigations felt to be urgent by the IF team should continue, if the benefit of performing the test is judged to be greater than the risk of SARS-CoV-2 exposure to the patient.

Many individuals will suffer from increasing psychological concerns during the SARS-CoV-2 pandemic. It is recognised that a significant proportion of patients living with CIF suffer from anxiety and depression and these problems may clearly be exacerbated during the crisis particularly because of self-isolation at home, not least since HPN-dependent individuals' mental health has been found to be worse without social support networks [1]. IF teams should review psychological support services available for CIF patients at home during the SARS-CoV-2 pandemic. Remote telephone or video consultations should be conducted regularly by

appropriate team members including psychologists if possible [4] with active encouragement to engage with patient support forums or seek treatment if necessary.

3.4. In-hospital care

3.4.1. Discharging new patients requiring HPN

Patients newly dependent on PN should be discharged as soon as metabolically stable and suitable for HPN. In-hospital investigations (e.g. radiological) should be deferred if not felt to be mandatory for safe discharge from hospital in order to limit exposure of the patient and medical staff to SARS-CoV-2 infection.

As outlined above, IF care is centralized in many countries, such that transfer to an CIF centre is typically required under normal circumstances to establish patients on HPN. Thus, the remote discharge of new patients requiring establishment on HPN from non-IF centres may need to be considered during the SARS-CoV-2 pandemic, if inter-hospital transfer to an IF centre is not possible and/or deemed to place an excessive risk to the patient. The safety and efficacy of such an approach was recently demonstrated by a U.K. CIF centre [3]. If such an approach is adopted, it is vital that there are clear channels of communication between the IF and non-IF centre, with both centres agreeing that the patient is metabolically stable and suitable for HPN. Thereafter, it is important that the IF centre is appraised of the patient's clinical status, including accurate fluid balance, PN requirements, recent blood results, comorbidity, discharge and training requirements. An appropriate central venous catheter (CVC) must be placed prior to discharge as agreed by the IF team [8,10]. Clearly, remote discharge is only feasible if nursing administration of PN can occur at home until the patient can either be admitted to the CIF centre for PN training or in-home training can occur. Importantly, any lessons learned from establishing remote discharge pathways during the ongoing pandemic may later be used to improve protocols in countries where CIF care is less centralized and also to bring patient care closer to home.

3.4.2. Readmission of HPN-dependent patients

Patients should only be admitted to hospital if deemed to be clinically vital and the admission cannot be safely deferred. Equally, patients should be reassured and advised by CIF teams to seek medical advice and/or present to hospital with emergency HPN-related complications and/or complications related to the underlying IF condition in order to minimize any delays in vital therapies.

Elective surgery, including gastro-intestinal reconstructive surgery to regain nutritional autonomy, is likely to be delayed during the SARS-CoV-2 pandemic. Similarly, small bowel transplant programs will likely be paused such that CIF teams should enhance the monitoring of patients awaiting transplantation to ensure clinical stability.

3.4.3. Emergency admission with SARS-CoV-2 infection

CIF patients with SARS-CoV-2 infection may present with pyrexia, respiratory symptoms or gastro-intestinal symptoms [5,7]. The latter may be evident as a high output stoma or biochemical disturbance/dehydration in those with short bowel syndrome. CIF patients reporting such symptoms should be asked to seek medical advice for urgent evaluation.

The CIF team should be informed of the patient's admission to hospital and provide relevant CIF-related advice to the medical team during the patient's hospital stay. As with all patients admitted to hospital with SARS-CoV-2 infection, it is important to maintain adequate nutrition and hydration [2]. It is also important that clinical teams are aware of the potential increased risk of thromboembolism associated with SARS-CoV-2 infection [13] that

may be pertinent to CIF patients with long term CVCs and this risk considered on a case-by-case basis with advice sought from the haematology and CIF team as needed.

The need for HPN per se should not determine whether a patient's care should be escalated to intensive care/invasive ventilation in the event of clinical deterioration from SARS-CoV-2 infection. Decisions should be made on a case-by-case basis by the intensive care team, the patient and family and ideally with input from the patient's IF team, wherever feasible.

3.4.4. Emergency admission with IF-related issues

Patients may require admission to hospital with CIF-related complications, such as CVC-related or metabolic problems. Early pre-emptive contact by the patient with the specialist CIF team is vital as this may obviate the need for admission if the issue can be managed in the community, by the general practitioner and/or through day-case attendance at a CIF centre for assessment and therapy.

If patients are admitted to a non-CIF centre, then the CIF team should be informed immediately of the patient's issues in order to guide expedient patient care. Sharing of specialised CIF protocols for management with the local hospital team will optimise outcomes.

It may be difficult to distinguish a CVC-related blood stream infection (CRBSI) from SARS-CoV-2 infection in a pyrexial HPN-dependent patient. While features such as pyrexia on PN infusion may suggest a CRBSI and an associated cough and/or household contact may suggest SARS-CoV-2 infection, it is likely that the exact source of the pyrexia will be difficult to determine such that SARS-CoV-2 testing alongside CVC and peripheral venous cultures will be required [8]. If possible, such investigations should be performed close to the patient's home in order to minimise travel and unnecessary contact during the pandemic.

Admissions to hospital should be as short as possible, while maintaining clinical effectiveness and patient safety. Thus, it may be deemed appropriate to modify IF clinical pathways during the SARS-CoV-2 pandemic in order to expedite safe patient discharge; this may involve removal/replacement rather than salvage of infected CVCs, if deemed by the IF team not to compromise the patient's venous access.

Wherever possible, CIF centres with designated wards for managing IF patients should endeavour to maintain a SARS-CoV-2 free environment. As such, patients transferred to IF wards for care should undergo SARS-CoV-2 testing so that those with the infection can be managed within appropriate areas as required.

Recruitment into CIF-related research studies is likely to be on-hold during the pandemic as focus directs to COVID-19 related activity. Nonetheless, CIF teams should be encouraged to collect data on the outcomes of all HPN-related complications managed during the pandemic.

4. Summary

The approaches adopted by different CIF teams to the management and outcomes of HPN-dependent patients during the SARS-CoV-2 crisis are currently unknown but will inform the CIF community as to how to provide best care for this vulnerable group of patients during on-going and/or other crises in the future. Equally, lessons learned during the SARS-CoV-2 crisis, including novel ways of working, such as remote discharge of new patients on HPN and telemedicine follow-up, will hopefully rationalise and streamline the routine care offered in order to improve patients' quality of life, while also enhancing the cost-effectiveness of the healthcare service delivered.

Key statements

The resilience of the chronic intestinal failure multi-disciplinary team can be enhanced by encouraging cross-skilling between disciplines to utilize resources efficiently.

Home care workers access to patients' home should be limited to essential needs and patient and/or caregiver autonomy in managing the PN infusion should be empowered wherever possible.

The use of telemedicine for patient monitoring, including psychological support, should be implemented, while also ensuring that patients have relevant emergency contact details for access to advice from the CIF centre when required.

Clinical evaluation including blood tests, radiological or endoscopic studies should be evaluated based on clinical urgency with routine assessments being deferred where clinically safe.

Protocols for remote discharge of new patients on HPN should be devised and applied.

In patients with CIF, SARS-CoV-2 infection may present with a worsening of GI function in addition to pyrexia and/or respiratory symptoms. Evaluation for both CIF-related complications such as CRBSI as well SARS-CoV-2 should be performed.

Emergency hospital admission for IF/HPN-related complications should not be postponed and should occur at the patient's local hospital whenever feasible. Communication between the local hospital and CIF centre should commence immediately to share management protocols and hospitalization should be as short as possible.

Conflict of interest

None.

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