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### The effect of the COVID-19 pandemic in intestinal rehabilitation and transplant patients, initial results of an international survey

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## O-21

**Using Virtual Technology to Preserve the Lifespan of Central Venous Access Devices**Cole A<sup>1</sup>, Naik S<sup>1</sup>, Patel M<sup>1</sup>, Shah J<sup>1</sup>, McConnell R<sup>1</sup><sup>1</sup>Barts Health - The Royal London Children's Hospital

**Aim:** To use a web based management platform to prevent occlusions and preserve the lifespan of a central venous access devices (CVAD) for Home Parenteral Nutrition (HPN).

**Background:** Despite many techniques, adjuncts and pharmaceutical agents there are some CVADs that remain troublesome with frequent partial and full occlusions that require CVAD exchanges. The CVAD for a child or young person that requires HPN can be described as a "lifeline" and all options to maintain long term patency should be utilised. MicrelCare have a web based care management platform that monitors real time infusion pressures relaying information from the home to the hospital

**Methodology:** Using one teenage male on HPN (who had experienced 3 CVAD exchanges in 2 years) as a candidate for MicrelCare, we virtually monitored his CVAD pressure's and infusion alarms via a real time platform. This virtual platform alongside clinical correlation (patient consultations and physical assessment) allowed for the determination of pressure range monitoring and the early detection of line stiffness and pre cursors to occlusion.

**Results:** We were able to determine that for this patient when the CVAD pressure levels reached 0.2 bar it was imperative that we physically assessed the CVAD and followed the in house protocol of Urokinase/Alteplase instillation followed by an Ethanol treatment if required (including hub inspection and POP technique) to prevent irreversible occlusion.

Interestingly the pressure bar for this young man is lower than MicrelCare would expect and that of our patient cohort.

**Conclusion:** MicrelCare can be a useful tool to virtually monitor and predict precursors to CVAD stiffness and occlusion when used with clinical correlation. This allows the development of a robust tailored care plan, which prolongs the life of a CVAD and in turn preserves venous access.

## O-22

**The Effect of the COVID-19 Pandemic in Intestinal Rehabilitation and Transplant Patients, Initial Results of an International Survey**Fernandez M<sup>1</sup>, Cristina Segovia M<sup>2</sup>, Dijkstra G<sup>3</sup>, Herlenius G<sup>4</sup>, Testro A<sup>5</sup>, Sharkey L<sup>6</sup>, Braun F<sup>7</sup>, Rumbo C<sup>1</sup>, Lacaille F<sup>8</sup>, Friend P<sup>9</sup>, Jafri S<sup>10</sup>, Vilca Melendez H<sup>11</sup>, Horslen S<sup>12</sup>, Schiano T<sup>13</sup>, Zanfi C<sup>14</sup>, Solar H<sup>1</sup>, Ramisch D<sup>1</sup>, Mazariegos G<sup>15</sup>, Gondolesi G<sup>1</sup>

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**Introduction:** On January 30, 2020 the World Health Organization (WHO) declared the 2019-CoV outbreak in China as a global public health emergency and subsequently, a pandemic on March 11<sup>th</sup>. It was considered that intestinal failure and intestinal transplant patients might have a higher risk of severe complications from the COVID-19 disease, multidisciplinary intestinal failure teams had to adapt their clinical approaches in order to keep this vulnerable group of patients as safe as possible during the pandemic; but data was lacking. Therefore, in order to improve our knowledge, we designed a voluntary, international survey aiming to address the impact of the COVID-19 disease in intestinal failure and transplant patients worldwide.

**Patient and Methods:** A retrospective, observational, multicenter survey was sent to all centers registered at the Intestinal Rehabilitation and Transplant Association (IRTA).

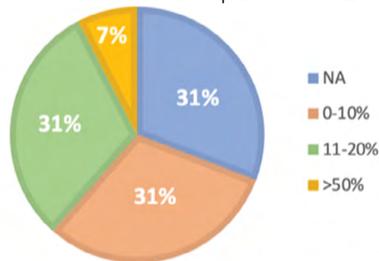
The survey contained three modules: the 1<sup>st</sup> one consisted of 14 questions about the hospital's activity during the COVID-19 pandemic. The 2<sup>nd</sup> one, contained 43 questions, was about intestinal failure patient management and outcome and the 3<sup>rd</sup> one (52 questions) focused on intestinal transplant patients. We used the Google Form platform. We aim to present the preliminary results of the first module. Statistical analysis was performed with the IBM SPSS Statistic version 25.0® program.

**Results:** 13/42 (41%) centers responded; including centers from France, Netherlands, Italy, United States, UK, Sweden, Germany and Argentina. Only 2 centers reported moratorium on intestinal (IT) or multivisceral transplant (MVT), with a mean of 3 months (±4) [Table 1]. Since the pandemic started, 2 institutions reported 4 patients with intestinal rehabilitation or on TPN diagnosed with COVID-19 while 7 centers hospitals claimed to have had 9 patients post-IT/MTV affected by the disease. While 7 centers had their routine follow up and "protocol biopsies" in the post-IT/MTV affected, none reported higher rates of rejection or complications. At the same time, 8 centers (77%) were affected by a mean of 15% decrease in referrals for new evaluations of intestinal failure or transplantation (compared to 2019) [Figure 1]. All centers adapted to utilizing telemedicine to follow up on IT/MVT patients.

**TABLE 1.****Moratorium for listing patients by center.**

Moratorium	Centers (N)
Patients listed for isolated intestine/non liver-containing graft transplant	5/13
Patients with cirrhosis and a MELD-Na score <20 listed for a multivisceral transplant	2/13
Patients with cirrhosis and a MELD-Na score >20 listed for a MVT	2/13
Patients without cirrhosis and a MELD-Na score <20 listed for a MVT	2/13
Patients without cirrhosis and a MELD-Na score >20 listed for a MVT	1/13
No moratorium	7/13

**Figure 1.** Percentage of centers affected by a reduction in the number of referrals for evaluation in comparison with 2019.



**Fig. 1.** Percentage of centers affected by a reduction in the number of referrals for evaluation in comparison with 2019

**Conclusions:** Many aspects of healthcare have been impacted by the COVID-19 pandemic. The survey showed that the number of affected patients has been lower than expected, the reduced number of centers required transient moratorium of their activity, but a secondary observation was that despite the availability of telemedicine, and probably related to the lockdown, there has been a significant reduction in the referrals for evaluation of intestinal failure and transplant patients, that may have the deleterious effect of the delay of treatment in health care system.

## O-23

### Pediatric Home Parenteral Nutrition in France: A Six Years National Survey

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**Objective:** Home Parenteral Nutrition (HPN) is the cornerstone management for children suffering from chronic intestinal failure (CIF). In France, HPN is organized from a network of 7 certified centers located in University Hospitals spread across the national territory. This study aims to review the data involving children on HPN over a 6-years period in France.

**Population and methods:** This cross-sectional study included all children enrolled in any of the 7 French HPN certified centers from January 1<sup>st</sup>, 2014 to December 31<sup>st</sup>, 2019. Data was recorded from annual databases provided by each center regarding: age at inclusion, indication and duration of HPN, type of intravenous lipid emulsion (ILE), outcome [PN weaning off, transfer to adult center, death, intestinal transplantation (ITx)], rate of catheter-related bloodstream infections (CRSBIs) for 1000 days of HPN, Tauridine lock procedure (TLP) use and prevalence of cholestasis defined as conjugated bilirubin  $\geq 20\mu\text{mol/l}$ .

**Results:** According to the year of follow up, the indications for HPN were short bowel syndrome (SBS) (42.3-46.6%), congenital enteropathies (CE) (18.5-22.8%), chronic intestinal pseudo-obstruction syndrome (CIPOS) (13.0-16.3%), long segment Hirschsprung's disease (LSHD) (9.7 - 13.3%), Crohn's disease (CD) (1.6-2.6%) and other non-primary digestive diseases (NPDD) such as immune deficiency, cancer or metabolic disease (4.0-9.2%). The median age at discharge on HPN tended to decrease from 11.7 months in 2014 to 8.3 months in 2019 ( $p < .001$ ). By December 31<sup>st</sup>, 2019, 44.8% of children had left the HPN program after a duration ranging between  $48.1 \pm 33.7$  and  $71.1 \pm 22.8$  months. Among these patients, 192 patients (74.2%) were weaned off PN (94.7% SBS), 41 (15.8%) were transferred to adult centers for CIPOS (42%), SBS (31%) or CE (27%), 21 died (8.1%) - mostly in relation to cancer or immune deficiency - and 5 were transplanted (1.9%): 4 combined liver-intestine for LSHD ( $n=2$ ), SBS, CE and one multivisceral Tx for CIPOS. The use of a composite fish-oil based ILE increased from 67.4 % in 2014 to 88.3 % in 2019 ( $p < .001$ ). CRSBIs dropped from 1.04 CRSBIs per 1000 days HPN in 2014 to 0.61 in 2019 ( $p < .001$ ) while meantime, the percentage of children receiving TLP increased from 29.4 % to 63.0 % ( $p < .001$ ). The prevalence of cholestasis (conjugated bilirubin  $\geq 20\mu\text{mol/l}$ ) was low and stable between 4.1 and 5.9% of children during the study period.

**Conclusion:** In France, the number of children enrolled in a HPN program continuously increased over the 6 years period. SBS is the leading cause of CIF requiring HPN. The rate of CRSBIs dropped dramatically as the use of TLP increased. Mortality rate was low and mainly in relation to the underlying disease (cancer, immune deficiency). Cholestasis and intestinal Tx remained very rare. This could be explained by the low incidence of CRSBIs and the wide use of fish-oil based ILE.