Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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LETTER TO THE EDITOR

Managing Intrathecal Drug Delivery Devices in a Global Pandemic

To the Editor:

Covid-19 pan epidemic has imposed the need to limit exposure of vulnerable patients, prevent spread to health-care workers, and the need to manage critical hospital resources. Intrathecal drug delivery devices (ITDD) are utilized for pain and spasticity with multiple combinations of off-label and on-label preparations. These medical therapies are life changing in providing relief for intractable pain and spasticity not responsive to systemic analgesics. Holding off on these therapies and asking patients to return to oral medications alternatives including opioids can lead to concerns of opioid addiction, dependence, and diversion. Many of these medications have significant cognitive, respiratory, and mental effects. Many patients have combination of therapies that may cause sudden severe and life-threatening withdrawal reactions such as intrathecal clonidine as with hypertensive crisis and cardiomyopathy (1,2). Abrupt cessation of intrathecal baclofen can result in life-threatening multi-organ failure and death (3).

Most centers in the world are limiting access to surgical implantation de novo and pump replacements. The continued management of intrathecal pumps falls in time sensitive and urgent the classification of surgical cases as per American College of Surgeons (ACS) (4):

1. Emergent: Needs to be completed immediately due to threatening loss of life
2. Urgent: Needs to be completed within 24 h
3. Time-sensitive: Needs to be completed within four weeks
4. Elective: Can be postponed for greater than four weeks

Other societies (Neuromodulation Society of United Kingdom and Ireland and American Society of Regional Anesthesiology) have published statements on the medical necessity of ITDD pump management with need of procedural precautions and conduct of procedure (5).

Patients will be screened for the possibility of COVID-19 infection. A history of travel from high risk areas or countries, exposure to COVID-19 infected persons and/or the presence of symptoms increase the likelihood of infection. Self-quarantine of at least two weeks is recommended or testing for antibodies if possible. Regional and universal guidelines are constantly changing. Detailed information for protection of patients and health-care providers are provided in various websites:

1. Center for Disease Control (https://www.cdc.gov/coronavirus/2019-ncov/infection-control-recommendation.html)
2. European Centre for Disease Prevention and Control (https://www.europa.eu/en/all-topics-z/coronavirus/threats-and-outbreaks/covid-19/preparedness-and-response-covid-19).

In Covid-19 negative or a low-risk patient.

1. Ensure minimal patient movement and social distancing in initial assessment.
2. Have patient wear masks or cover to reduce spread.
3. Health-care provider should wear mask, eye glass protection, surgical gown, and gloves. If possible, utilize N95 mask or similar filtering facepiece respirators (FFR).
4. If possible, utilize plastic covers of programmer. Nonsterile gloves have been used to cover programmer and for initial preparation. Nonsterile gloves to be used for preparation of patient.
5. Routine aseptic technique.
6. Proper removal and disposal of gloves, masks, and material.
7. CDC (Center for Disease Control and Prevention) or WHO (World Health Organization) have not issues instruction about how to clean FFR or face masks. There is no standard or single answer. Previous influenza pandemics revealed a shortage of FFR and suggest various biological decontamination process to inactivate influenza virus. Little data exist on the effects of decontamination methods on respirator integrity and performance. If masks have to be re-used, consider decontamination the following approaches;

- With ultraviolet light with sunlight for 30 minutes each side.
- Consider use of steam for 5 minutes.
- Consider gas sterilization if possible, such as VHP and ethylene oxide.

In Covid-19 positive or high risk patient.

1. If possible, delay refill and reprogramming for two weeks.
2. If not possible, continue to follow protocol above.
3. Consider home care visit.
4. Consider these cases at end of day minimize exposure to staff and allow further decontamination.

In conclusion, the decision-making in ITDD can be life altering or life threatening, and medical judgment should be used on a case per case basis, but the guidance here can improve safety.

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Conflict of Interest: Dr. Philip Kim is a consultant for Medtronic, speaker for Tera Sera. Dr. Timothy Deer is a consultant for Medtronic and Flowonix.

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