


## COVID-19 CONTROL IN A HAVANA SURGICAL HOSPITAL

### To the Editors:

We write to share the experience in COVID-19 transmission control at our hospital, National Center of Minimally Invasive Surgery (CNCMA) in Havana, Cuba. The institution is the national reference center for application, training and research related to minimally invasive surgical procedures.[1]

During the epidemic in Cuba, CNCMA has continued surgeries, following nationally established COVID-19 protocols,[2] implementing actions for prevention, diagnosis and control of the disease in patients and health personnel. These include training health workers on epidemiological and biosafety aspects, in accordance with their potential levels of exposure; application three times daily of 0.5% sodium hypochlorite solution in areas of the hospital not usually disinfected (office furniture, common areas such as elevators, stair handrails, doors, etc.), as well as 0.5% sodium hypochlorite solution for shoes and 0.1% solution for hands upon hospital entrance; active case finding to detect possible cases; and individual PPE for employees. In the April–June 2020 period, we also restricted surgical activity to oncology patients or those requiring urgent care due to digestive hemorrhage,[3] which thus decreased it to 14% of monthly averages compared to the pre-epidemic January–March 2020 period, gradually increasing to the 'new normal' phase by October, reaching 66% of planned surgeries for the month.[2] Access to the institution has also been limited (patient visits suspended, limits on numbers of personnel, telecommuting where possible), and a CNCMA-specific protocol was developed for the pandemic,[4] based on the national Prevention and Control Program for Healthcare-related Infections,[5] and the National COVID-19 Protocol.[2]

From April through October, 2020, 719 surgeries were performed and 3529 patients were seen in CNCMA's outpatient services, completing 47.0% of annually planned surgeries and 56.2% of ambulatory consults for the period. Of 410 current employees, 379 (92.4%) have been incorporated on-site. As of this writing (November 7), all services have been re-established as well as part of our academic activities, and no cases of COVID-19 have been reported among patients or staff.

Implementing the institutional protocol for surgical activity during the pandemic[4] has been essential for normalizing our work and providing quality medical care to patients. Its guidelines could be useful for similar institutions as well as to supplement the National Protocol for COVID-19 Prevention and Control with respected to surgical activities. 

1. National Center of Minimally Invasive Surgery (CU) [Internet]. Havana: National Center of Minimally Invasive Surgery (CU); c2020 [updated 2020 Oct 27; cited 2020 Nov 5]. Available at: <http://www.cce.sld.cu/>. Spanish.
2. Ministry of Public Health (CU). Protocolo de actuación nacional para la COVID-19. Versión 1.5. [Internet]. Havana: Ministry of Public Health (CU); 2020 Aug [cited 2020 Oct 30]. 215 p. Available at: <https://files.sld.cu/editorhome/files/2020/08/VERSION-5-DEL-PROTOCOLO-PARA-PUBLICAR-13-DE-AGOSTO-2020.pdf>. Spanish.
3. Ministry of Public Health (CU). Resolución 128. Disposiciones sanitarias para la etapa de prevención y control de la propagación de la COVID-19 del MINSAP [Internet]. Havana: Ministry of Public Health (CU); 2020 May 11 [cited 2020 Jun 10]; [about 7 p.]. Available at: <http://juriscuba.com/resolucion-no-128-2020/>. Spanish.
4. National Center of Minimally Invasive Surgery (CU). Actuación en situación de pandemia de COVID-19 [Internet]. Havana: National Center of Minimally

Invasive Surgery (CU); 2020 [cited 2020 Nov 5]. 22 p. Available at: <http://www.cce.sld.cu/pub/pno-covid-19-cncma.pdf>. Spanish.

5. Ministry of Public Health (CU), Vice ministry of Hygiene, Epidemiology and Microbiology, National Department of Epidemiology. Programa de prevención y control de las infecciones asociadas a la asistencia sanitaria. Versión 0.5. Havana: Ministry of Public Health (CU); 2011. Spanish.

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<https://doi.org/10.37757/MR2021.V23.N1.16>

## DANGERS AND MANAGEMENT OF OBSTRUCTIVE SLEEP APNEA SYNDROME IN COVID-19 PATIENTS

### To The Editors:


Related to my earlier publications on central nervous system involvement in COVID-19,[1,2] I would like to stress the importance of diagnosing obstructive sleep apnea syndrome (OSAS) in infected patients, prompting early use of continuous positive air pressure (CPAP) to prevent hypoxemia.

OSAS is commonly related to obesity, which is considered an important risk factor for severe COVID-19. Nevertheless, publications about the possible association between OSAS and COVID-19 are relatively scarce.[3]

SARS-CoV-2 uses the angiotensin-converting enzyme 2 (ACE2) receptor for host cell entry. In COVID-19 patients whose OSAS is untreated, augmented ACE2 expression and deregulation of the renin-angiotensin system occur. OSAS leads to repetitive airway collapse with apnea/hypopnea and hypoxia during sleep. Hypoxia/re-oxygenation during each apnea episode in OSAS patients worsens hypoxemia and can stimulate ACE2 synthesis in endothelial cells, inducing higher ACE activity and thus aggravating the cytokine storm typical of severe COVID-19. Thus, OSAS (particularly with concurrent obesity) could contribute to increased hypoxemia, further provoking the cytokine storm that can cause acute respiratory distress syndrome (ARDS), multiorgan failure and death in these patients. [1,2,4]

Non-invasive ventilation (NIV) plays a more significant and helpful role than first thought, mainly if used at early stages of COVID-19. CPAP is now the preferred form of NIV to manage hypoxemic COVID-19 patients. In fact, use of improved and enhanced CPAP equipment is providing growing evidence that this NIV method

may benefit patients early in the disease's progression, preventing ARDS and reducing the need for invasive ventilation.[3,5]

Hence, I highly recommend beginning CPAP in COVID-19 patients as soon as the first respiratory symptoms appear—even during care outside of intensive care units—especially for those patients with OSAS.[4] 

1. Machado C. Severe Covid-19 cases: is respiratory distress partially explained by nervous central system involvement? *MEDICC Rev.* 2020 Apr;22(2):38–9.
2. Machado-Curbelo C. Silent or 'happy' hypoxemia: an urgent dilemma for COVID-19 patient care. *MEDICC Rev.* 2020 Apr;22(2):85–6.
3. Thorpy M, Figuera-Losada M, Ahmed I, Monderer R, Petrisko M, Martin C, et

al. Management of sleep apnea in New York City during the COVID-19 pandemic. *Sleep Med.* 2020 Oct;74:86–90.

4. Machado C, DeFina PA, Machado Y, Chinchilla M, Cuspineda E, Machado Y. Continuous positive air pressure (CPAP) should be used in all COVID-19 patients when the first and mild respiratory symptoms commence. *J Respir Dis Med.* 2020;2:1–6. DOI: 10.15761/JRDM.1000124.
5. Cade BE, Dashti HS, Hassan SM, Redline S, Karlson EW. Sleep apnea and COVID-19 mortality and hospitalization. *Am J Respir Crit Care Med.* 2020 Nov 15;202(10):1462–4. DOI: 10.1164/rccm.202006-2252LE.

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