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Letter to the Editor

Nursing Activities Score is increased in COVID-19 patients

Dear Editor,

Lucchini and colleagues recently demonstrated that the nursing workload in COVID-19 critically ill population assessed by the Nursing Activities Score (NAS) is dramatically increased in Covid 19 patients admitted in their ICU and suggested that the ideal nurse-to-patient ratio for these patients should be around 1:1.5 (Lucchini et al., 2020; Padilha et al., 2015; Miranda et al., 2003). Unfortunately, the need to provide new ICU beds makes impossible to guarantee this specific nurse-to-patient ratio.

Our observations also suggest an increase of nursing workload in the ICU (10 beds) confirmed by a significant higher NAS during the period between 14 March 2020 and 30 April 2020. Our ICU was transformed in a Covid 19 ICU; non Covid patients were admitted in the recovery room transformed in an additional ICU where anesthesiologists (supported by the intensivists) and operating and recovery nurses were responsible to care for the non Covid ICU patients.

Higher NAS results in the Covid ICU reflect the general higher workload secondary to Covid 19 infections which is responsible for various severe complications (Tavazzi et al., 2020; Guan et al., 2020; Clerkin et al., 2020). We routinely monitor in our ICU all main and secondary diagnosis, patients characteristics, ICU scores (like SAPS III and SOFA), invasive techniques, catheters used, infectious complications, antibiotic use, microbiological ecology, adverse events and also nursing workload by daily NAS measurements (three times a day). Covid 19 patients developed more acute respiratory failure, septic shock and renal insufficiency compared with the ICU patients admitted during the same period in 2019 (14 March to 30 April 2020) but also compared with the global data of our ICU during one year (13 March 2019 to 13 March 2020).

Not only complex procedures like prone position or ECMO or elevated risk procedures (environmental factors with risk of exposure) could explain these observations about nursing activities for Covid 19 patients. Most of the monitored parameters are significantly modified during the six weeks of the actual Covid 19 epidemic in Belgium. We observed more ventilatory days, more infectious episodes, more vasoactive and antibiotic use, more renal support and more adverse events during these difficult days. This contributes to the higher NAS measured during these periods by Lucchini and coll and in our ICU (Table 1).

So nursing workload assessed by NAS measurements and workload in general during the actual Covid 19 pandemic raised confirmed by the parameters followed in modern ICU for quality and security evaluations. This could be explained by the pathophysiology of the illness responsible for a broad spectrum of severe complications, acute respiratory failure, sepsis, acute renal insufficiency and thromboembolic phenomenons (Clerkin et al., 2020) leading to a significant increasing in mortality in the Covid 19 population compared with the mortality before the epidemic period (Table 1).

We certainly confirm the need of an adequate reinforced nursing staff in the ICU for Covid 19 patients (estimated nursing staff per patient 0,82 according to the NAS data in our series) but also suggest the need of a multidisciplinary team collaboration including nurses and doctors from different hospital wards (ICU, operating theatre, emergency room, recovery room, and internal medicine). Covid 19 pandemic needs for its control the intervention of all forces of an acute hospital at the moment.

Table 1
Comparison of ICU patients characteristics (Age, gender, patients with artificial ventilator support), NAS results and mortality between Covid 19 patients (period between 14 March and 30 April 2020) and ICU patients (same period in 2019 (14 March and 30 April) and during one year between 13 MARCH 2019 and 13 March 2020).

	COVID-19 patients n = 31 *MD ± SD*	03/2019 04/2019 ICU patients n = 71 *MD ± SD*	03/2019 03/2020 ICU patients n = 549 *MD ± SD*	p value
Age, years	63,97 ± 7 (49–81)	67,46 ± 12	67,69 ± 14	0.810*
Gender, females (%)	35,48%	39,44%	48,45%	0.001#
ICU length of stay, days	8,1 ± 7	5,5 ± 5	4,9 ± 4	<0.001*
Pts with ventilatory support (%)	50%	23,70%	21,60%	<0.001#
NAS	81,83 ± 8,8	63,13 ± 9,61	67,12 ± 8,53	<0.001*
ICU mortality (%)	18,80%	11,80%	10,70%	<0.001#

Data are expressed as mean ± SD or absolute frequency (%).
* Student's *T*-test.
# Chi square test.

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P. Reper [a,b]
M.A. Bombart [b]
I. Leonard [b]
B. Payen [b]
O. Darquennes [b]
S. Labrique [b]

[a] *Critical Care Department, CHU UCL Namur, Yvoir, Belgium*
[b] *Critical Care Department, CHR Haute Senne, Soignies, Belgium*