



HAL
open science

The complex kinetics of blood endocan during the time course of sepsis and acute respiratory distress syndrome

Alexandre Gaudet, Erika Parmentier, Sylvain Dubucquoi, Julien Poissy, Thibault Duburcq, Lucie Portier, Philippe Lassalle, Nathalie de Freitas Caires, Daniel Mathieu

► To cite this version:

Alexandre Gaudet, Erika Parmentier, Sylvain Dubucquoi, Julien Poissy, Thibault Duburcq, et al.. The complex kinetics of blood endocan during the time course of sepsis and acute respiratory distress syndrome. *Critical care (London, England)*, 2019, *Critical care (London, England)*, 23, pp.86. 10.1186/s13054-019-2383-z . hal-04464992

HAL Id: hal-04464992

<https://hal.univ-lille.fr/hal-04464992>

Submitted on 19 Feb 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

LETTER

Open Access



The complex kinetics of blood endocan during the time course of sepsis and acute respiratory distress syndrome

Alexandre Gaudet^{1,2,3,4*} , Erika Parmentier^{1,2,3,4}, Sylvain Dubucquoi⁵, Julien Poissy⁴, Thibault Duburcq⁴, Lucie Portier^{1,2,3,6}, Philippe Lassalle^{1,2,3,7}, Nathalie De Freitas Caires^{1,2,3,6} and Daniel Mathieu^{1,2,3,4}

Dear Editor,

Several works have explored the blood concentrations of endocan in sepsis and acute respiratory distress syndrome (ARDS). However, data from the literature seem apparently conflicting, with high endocan levels being associated with either good or poor prognosis according to the different studies. Indeed, endocan levels on intensive care unit (ICU) admission correlate with the severity of sepsis [1]. In septic shock patients without ARDS at admission, high levels of endocan are found predominantly in patients who do not develop ARDS [2]. Ioakeimidou et al. reported that progression to ARDS in septic patients was associated with the increase of blood endocan during follow-up [3]. Furthermore, Orbe-gozo et al. and Tsangaris et al. reported that higher endocan levels measured at the clinical onset of ARDS were associated with poor respiratory outcomes [4, 5]. The above-stated observations suggest that endocan's predictive values may sound more complex than a simple association between high plasmatic levels and the development of poor outcomes.

To better understand the evolution of endocan over the time course of sepsis and ARDS, we conducted a post hoc analysis of the kinetics of blood

endocan over 72 h, based on the data from a previously published cohort of 72 septic patients without ARDS on baseline [2]. Among the 72 patients enrolled in this cohort, 11 subjects developed an ARDS at 72 h (8 mild, 3 moderate, 1 severe).

In patients without ARDS, endocan continually decreased during the 72-h time course following enrollment, with median [IQR] values falling from 9.2 [5.6–14.8] ng/mL on enrolment to 3.9 [2.6–7.7] ng/mL 72 h later (Fig. 1a). In patients progressing to mild ARDS, endocan moderately increased from 2.5 [1.3–3.4] ng/mL on enrolment to 4.1 [2.3–7.3] ng/mL at 72 h (Fig. 1b). We observed a higher increase of blood endocan in patients progressing to moderate and severe ARDS, with median [IQR] values rising from 4.7 [2.5–5.4] ng/mL on enrollment to 11 [9.5–12.6] ng/mL at 72 h (Fig. 1c).

This study highlights the kinetics of endocan in severe sepsis and ARDS, thus helping to understand the apparently conflicting results observed in the literature. However, the interpretability of this work remains limited given the small effectives in each subgroup of ARDS, yet it may be used jointly with other data from the literature to elaborate a model of endocan's kinetics during severe sepsis and ARDS. Therefore, further explorations are required to comfort these results.

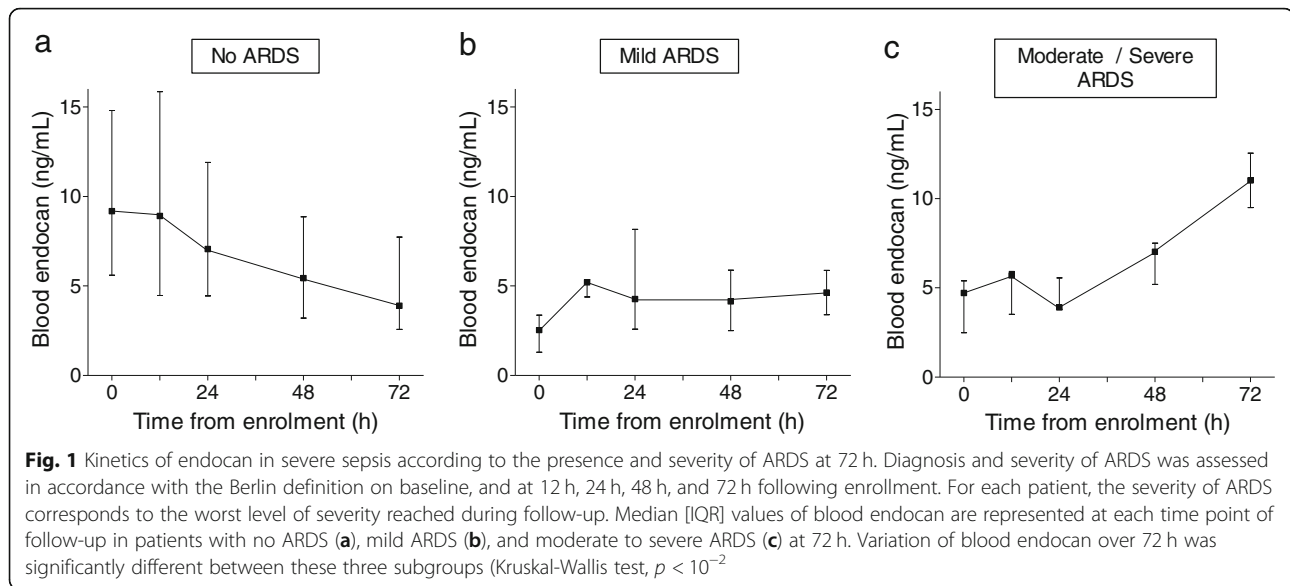
* Correspondence: alexandre.gaudet@chru-lille.fr

¹Univ. Lille, U1019 – UMR 8204 – CILL – Center for Infection and Immunity of Lille, F-59000 Lille, France

²CNRS, UMR 8204, F-59000 Lille, France

Full list of author information is available at the end of the article





Abbreviations

ARDS: Acute respiratory distress syndrome; ICU: Intensive care unit

Acknowledgements

Not applicable.

Funding

This work was supported by BPI France (grant number BPI 2012-05-336). This funding was attributed to D. M, representing Lille University Hospital. There was no role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions

AG and EP designed the whole study, conducted the data analyses, and drafted the manuscript. ND, LP, and SD performed the biological measurements. DM supervised the whole project. All authors read and approved the final manuscript.

Ethics approval and consent to participate

This study has been approved by the ethics committee of Lille University Hospital (approval number CP03/07). All the participants to this study gave their informed consent prior to enrollment.

Consent for publication

Not applicable.

Competing interests

The Endomark H1 and DIYEK C1 ELISA kits used in this study were provided by Lunginnov. P. L. is the cofounder of Lunginnov. N. D. and L. P. are staff members of Lunginnov. The other authors declare that they have no conflicts of interest.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Author details

¹Univ. Lille, U1019 – UMR 8204 – CILL – Center for Infection and Immunity of Lille, F-59000 Lille, France. ²CNRS, UMR 8204, F-59000 Lille, France. ³INSERM, U1019, F-59000 Lille, France. ⁴CHU Lille, Pôle de Réanimation, Hôpital Roger

Salengro, F-59000 Lille, France. ⁵CHU Lille, Institut d'Immunologie, Centre de Biologie Pathologie Génétique, F-59000 Lille, France. ⁶Lunginnov, 1 rue du Pr Calmette, F-59000 Lille, France. ⁷Institut Pasteur de Lille, F-59000 Lille, France.

Received: 12 February 2019 Accepted: 28 February 2019

Published online: 12 March 2019

References

1. Scherpereel A, Depontieu F, Grigoriu B, Cavestri B, Tscicopoulos A, Gentina T, et al. Endocan, a new endothelial marker in human sepsis. *Crit Care Med*. 2006;34:532–7.
2. Gaudet A, Parmentier E, Dubucquoi S, Poissy J, Duburcq T, Lassalle P, et al. Low endocan levels are predictive of acute respiratory distress syndrome in severe sepsis and septic shock. *J Crit Care*. 2018;47:121–6.
3. Ioakeimidou A, Pagalou E, Kontogiorgi M, Antoniadou E, Kaziani K, Psaroulis K, et al. Increase of circulating endocan over sepsis follow-up is associated with progression into organ dysfunction. *Eur J Clin Microbiol Infect Dis*. 2017;36(10):1749–56.
4. Orbegozo D, Rahmanian L, Irazabal M, Mendoza M, Annoni F, De Backer D, et al. Endocan as an early biomarker of severity in patients with acute respiratory distress syndrome. *Ann Intensive Care*. 2017;7 [cited 2017 Dec 10]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5589715/>.
5. Tsangaris I, Tsantes A, Vrigkou E, Kopterides P, Pelekanou A, Zerva K, et al. Angiopoietin-2 levels as predictors of outcome in mechanically ventilated patients with acute respiratory distress syndrome. *Dis Markers*. 2017;2017:6758721.