Dear Editor,

We read with great interest the article of Donagaon et al.\(^1\) regarding the association between glycemic gap and adverse outcome in critically ill patients. The authors have shown on a cohort of 200 diabetic patients admitted to the intensive care unit (ICU) that the higher was the excursion in glucose blood levels, the higher was the risk of life-threatening complications, notably acute respiratory distress syndrome (ARDS), multiple organ dysfunction syndrome, and acute kidney injury. They also showed a significant correlation with mortality, a result recently confirmed also by Singh et al.\(^2\). To perform their analyses, Donagaon et al.\(^1\) used the glycemic gap, a very interesting parameter that allows to estimate glucose blood levels excursion by subtracting the average glucose of the previous 8–12 weeks (\(ADAG = [28.7 \times HbA1c] - 46.7\)) from plasma glucose at admission.\(^3\) Although many methods to calculate glucose excess and glucose variation have been described,\(^3\) we find this method of computation very helpful and easier to use. Furthermore, we think that this article allows interesting considerations, especially concerning the risk of developing ARDS.

Despite the fact that the prevalence of diabetes in the ICU population is estimated to be up to 40%, no studies have investigated the role of diabetes on ARDS development in a systematic manner, leading to conflicting results: some studies have hypothesized a protective role on ARDS, whereas others demonstrated no effects. In this scenario of uncertainty, the results of the European Society of Intensive Care Medicine (ESICM) trial group analysis on the LUNG SAFE database are more than welcomed.\(^4\) The aim of their investigation was, indeed, to answer to this longstanding-question: is there any association between diabetes and ARDS development? In patients admitted with acute hypoxic respiratory failure to 459 ICUs in 50 countries, they analyzed the incidence of ARDS on the second day from admission depending on the presence of diabetes. Interestingly, among 4107 patients, 209 of them developed ARDS after 2 days, with no differences between diabetics and non-diabetics (4.8% vs. 5.2%, \(P = 0.67\)). The authors found no differences also in terms of mortality between patients with and without diabetes (log-rank test, \(P = 0.28\)).\(^5\) The LUNG SAFE analysis offers a new insight into the relationship between ARDS and diabetes, and one of its strength point is, undoubtedly, the sample size on which it was performed. Nevertheless, it was not specified, as mentioned in the limitations, whether both the severity of diabetes and the presence of an uncontrolled hyperglycemic status could have played a role, leading to different conclusions. In this context, a simple method such as the glycemic gap could have been helpful in stratifying the population, providing these missing information.

In conclusion, one of the highest-quality investigation on the subject has shown that the presence of diabetes does not worsen the outcome in ARDS patients. Nevertheless, further studies aimed to enlighten the still unresolved issues are required; in our opinion, they could easily take advantage of the glycemic gap as the reference method for this purpose.

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**Conflicts of interest**

There are no conflicts of interest.

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