Introduction:
To evaluate the relationship between self-extubation and patient-ventilator interaction, among other physiological variables, in order to predict and to prevent these events. Self-extubation (SE) are quality indicators in patients under invasive mechanical ventilations (IMV) and are related with mortality.

Methods:
Planned secondary analysis of a prospective data base of clinical and physiologic signals of patients receiving IMV. We included SE episodes (2012-2018) with continuous record of ventilator and monitor signals (BCLink BetterCare®). We analysed demographic data, physiological parameters (peripheral oxygen saturation SpO2, heart rate HR, respiratory rate RR and media arterial pressure MAP) and patient-ventilator interaction (asynchrony index AI, ineffective efforts during expiration IEE and double cycling DC). We studied a period of 12 hours prior to the SE episode. We used the Wilcoxon non-parametric test and for a proper analysis a Linear Mixed Effects Model.

Results:
We included 21 episodes of SE, mean age 62±13 years, 76% men, APACHE II at admission 17±10, 4,6±3,8 days under IMV until the episode, reintubation rate 47.6%, ICU stay 20,9±17,6 days, ICU mortality 14%. At the time of the SE, 65% were under sedation, 65% with physical restraint. The 67% were in weaning.

We observed a trend to increase in SpO2, RR, HR, MAP and asynchronies in the 2-hour period prior to SE episode. We compared these variables from this period with a 2-hour period before and we observed a statistically significant difference in RR, HR, MAP and AI. Clusters of IEE and DC increased its power in the 2-hour period before SE.

Conclusion:
In this preliminary study, patient-ventilator interaction, as well other physiological variables, are related with self-extubation episodes. Further analysis will be needed to analyze the value of these variables as a predictive model.

References: