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海外招請講演

## [IL(E)2]海外招請講演2

座長:藤野 裕士(大阪大学医学部附属病院集中治療部)

Fri. Mar 1, 2019 3:05 PM - 3:55 PM 第2会場 (国立京都国際会館2F Room A)

共催:コヴィディエン ジャパン株式会社

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### [IL(E)2]What went wrong with ART, EPIVENT2 and PReVENT: Are the recent trials on lung protection contradicting lung physiology?

Marcelo Britto Passos Amato (University of São Paulo Heart Institute (INCOR) , Brazil)

【同時通訳付き】

He initiated his medical studies in 1980 at the Faculdade de Medicina da Universidade de São Paulo, and graduated in December, 1985.

After graduating, he had a year of training in Internal Medicine and Intensive Care Medicine, as a resident doctor, followed by two years of specialization in Pneumology and Intensive Care Medicine at the Pulmonary Division of the Hospital das Clínicas - Faculdade de Medicina da Universidade de São Paulo.

In 1996 (January) he presented his Doctoral Thesis ("A New Approach to Mechanical Ventilation in ARDS: Effects on Pulmonary Function and Mortality"), finishing with success his doctoral post-graduation. 2

In 1996 he spent 4 months in Minneapolis, working at the Laboratory of Prof. John Marini on a project about pleural pressure measurements during acute lung injury and partial liquid ventilation.

In 1997 he spent 3 months in Rotterdam, working at the Laboratory of Prof. Lachmann on a project about the Open Lung Approach and how to monitor Lung Function.

In 2008 (January) he presented his Thesis for “Livre-Docência” ( “Lung Stress during Artificial Ventilation:how to monitor and how to minimize it” ), finishing with success and obtaining his professorship at the University of São Paulo, Pulmonary Department.

We will present the results of 3 large multicenter randomized clinical trials about lung protection. The results of the 3 trials combined were disappointing. The ART and EPIVENT2 trials tested PEEP settings based on lung mechanics in ARDS, encompassing more than 1200 patients with moderate/severe disease. The results were surprising, showing either greater harm associated with high PEEP use (ART) or a neutral result (EPIVENT2). Of note, the control group of both trials used much higher PEEP levels than usual, with average levels of 13 and 16 cmH<sub>2</sub>O, respectively, making the interpretation of results extremely complex. In the ART trial, the harm was especially evident when the patients started assisted ventilation, 4-5 days after entering the trial, and especially so for those in whom Driving Pressures increased after PEEP increments. In this conference, we will provide some mechanistic explanations for the failure, providing also possible solutions and new clinical tools and procedures that should be used in future trials on lung protection. Of note, it is very likely that a large amount of unintended errors happened in both trials. Regarding the PReVENT, the use of a stricter protective tidal volume (6 mL/kg) failed in showing some positive outcome in patients with near normal lungs. The most likely explanation for this finding was the low power of the study, associated also with non-intended consequences of a too restricted tidal volume (breath-stacking). In fact, the period of assisted ventilation is now the major problem during mechanical ventilation – how to propose and effective strategy for lung protection, when patients are breathing spontaneously and self-inflicting lung injury?