Editorial: "It takes a goal in time to win a game"

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There are only a few months left before the next World Championship will start in South Africa. And millions of soccer enthusiasts will spend hours and hours watching television waiting for the ultimate goal of their team.

It is hard to believe that anyone would even spend a minute of his life to watch 22 players and 1 arbitrator simply running around playing with a ball but without the wooden cabins with a net on both sides of the field. Soccer without goals would be booring and meaningless.

Does this have anything to do with practicing anesthesia and critical care medicine? For hemodynamic therapy in patients undergoing major and high risk surgery probably more than one may think so on a first glance. It took almost 30 years to realize that hemodynamic therapy without clearly defined therapeutic goals is unsuccessfully, useless and meaningless - like two soccer teams only playing a ball simply forward and backwards on the field without a well defined aim – the goal. And it took 30 years to recognize that a goal-directed hemodynamic approach improves clinical outcomes by reducing mortality and morbidity of high risk surgical patients [1,2].

The concept of goal-directed hemodynamic therapy is directly associated with the name of one man, the surgeon W.C. Shoemaker who developed this concept in the late seventies of the last century. In the present issue of Applied Cardiopulmonary Pathophysiology W.C. Shoemaker presents an overview of his achievements in this field, four decades of scientific work dedicated to the simple question: "How can we improve the outcome of surgical and trauma patients with a high mortality risk?" [3]. And the answer is astonishingly simple. Any shock ultimately leads to tissue hypoperfusion and an oxygen debt. And measures aimed to prevent such an oxygen debt (to occur?), or to restore an oxygen deficit immediately – that means within hours after an insult has occurred – improves outcome. Thus the goal of hemodynamic optimization is to achieve and maintain an oxygen delivery that is adequate for the individual oxygen needs of a patient. And this works pretty well if started before permanent organ dysfunction has occurred: "you cannot win if the game is over !" (it´s the same like in soccer).

Much of the scientific evidence supporting and proofing this concept of hemodynamic optimization by goal directed therapy has been published almost 20 years ago [4-6], but despite the concept is so easy and intuitively to understand, it took almost a generation of physicians until it was accepted at least by a part of the scientific and critical care community [7,8]. For those that are still sceptic about the concept, the impressive overview presented by Shoemaker and Beez in the present issue of Applied Cardiopulmonary Pathophysiology will hopefully help to convince them that goal -directed hemodynamic optimization is an easy and efficient way to improve outcomes in surgical and trauma patients with a high mortality risk.

Another important question – also raised by the present article – is how to accomplish optimal goal-directed therapy in clinical practice. There is an ongoing discussion in the critical care community about the potential risks, but also about the reliability of different invasive monitoring technologies [9]. Shoemaker and Beez suggest in their article that the information gathered by a pulmonary ar-

tery catheter can also be derived from non-invasive monitoring [3]. Taking into account the imprecision of many non- or less invasive technologies [9,10] it is hard to believe that these observations will be reproduced in the other hands and in different clinical scenarios. Nonetheless it is an argument we have to think about and that is worth to be tested in clinical trials Soccer and hemodynamic therapy both need an aim – to shoot the deciding goal for our patients just in time let us go goal directed for hemodynamic optimization. Our job now is to integrate this concept into the critical care medicine of the 21th century. Shoemaker showed us the direction.

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