Sux Rocs and Roc Suks? Succinocholyne Vs Rocuronium in RSI

Immediately declare a conflict of interest: I am in love with Succinocholyne

It 'was a love at first sight.

I use it often and, in my clinical experience, it works!

I have never had problems and is well suited to all patients, both, traumatic and non traumatic.

But like all couples I am also conscious of the defects of my "companion".

I know the possible side effects, but so far I've always seen the the benefits ovewelming the defects, and by far I would say.

The increasing use of Rocuronium as neuromuscular blockade agent in rapid sequence intubation the last couple of years has placed me in front of a painful dilemma.

And I feel ready to look forward.

So let's see what are the arguments commonly adduced in favor of Succinocholyne, and if beyond the clinical experience they also have a scientific evidence base.

- **The Succinocholyne with its short duration of action is protective in all that cases where intubation is difficult or even worse in the "can't intubate and can't ventilate" patient.**

Many studies show that hypoxia (intended as a desaturation of hemoglobin below critical values) is established long before the return of a valid respiratory drive (1,2,3)

The common concept that in critical cases with Succinocholyne the return of spontaneous breathing protects from hypoxia is not supported by scientific evidence and is dangerously reassuring.

It also appears that the administration of a depolarizing paralytic agent such as succinylcholine results in a desaturation faster than that which occurs with rocuronium, probably cause of the increased O2 demand induced by fasciculations (4.5).

The short duration of action in the "can't intubate and can't ventilate" patient, offers a false psychological alibi that dangerously procrastinates the definitive procedure.

In other cases the quick wash out leads to administer repeated doses of paralytic, significantly increasing the risk of side effects in patients whose clinical history is not well known.

- **The Succinocholyne has historically been associated with better conditions for intubation (in terms of time and percentage of success at the first attempt) compared to rocuronium**

The studies underlying this conviction rather than to an intrinsic characteristic of the drug take their conclusions from an underdosing of Rocuronium in the implant of the studies themselves.

A Cochrane Review of 2008 "Rocuronium versus succinylcholine for rapid sequence induction intubation" retrospectively analyze this aspect of the two drugs and did not identify statistically significant differences between the two drugs although the authors concluded giving preference to the Succinylcholine as first option and Rocuronium is relagated as a viable alternative.

There is however a wide range of latest studies that show as intubation conditions are substantially comparable when the Rocuronium is properly dosed (6,7,8).

In summary

Succinocholyne:
His brief onset and rapid wash-out is definitely an advantage for the emergency physician. Much better "manually" ventilate a critically ill patient for 5 minutes than for 20.

There are, however, some considerations:

1. You can not wait for the return of spontaneous breathing without adequate ventilatory assistance (BVM or extraglottic device).
2. Do not forget that the patient should be intubated anyway, it is not a patient that can be awakened and delayed to the next day.
3. A new intubation attempt requires the administration of a new dose of paralytic increasing the risk of side effects.
4. In the "can't intubate can't ventilate" patient, surgical access should not be delayed. The rapid recovery of respiratory activity does not solve the problem!

In summary:

Rocuronium

No side effects; na that for critically ill patients in which the clinical history is not known this is definitely an advantage.

Medium risk for anaphylaxis (while the Succinocholyne is high risk) (9)

Its onset is similar to that of Succinocholyne when properly dosed.

The intubating conditions are similar.

The dose should be 1-1.2 mg / Kg, calculated on the ideal instead of the total body weight(13).

Its long duration of action allows:

- in case of difficult airway a better mask or extraglottic device ventilation being the patient completely relaxed
- in case of a new intubation attempt avoiding additional doses of paralytic

- if the patient is "can't ventilate can't intubate" to proceed immediately to a surgical airway, without false expectations

- For any instance exists a selective antagonist, the Suggammadex, which allows rapidly (3 minutes) from its administration the resumption of spontaneous breathing (10,11)

Then Sux or Roc in pharmacologically assisted intubation?

Succinylcholine regarding the hystory and the well consolidated practice stil mantain a slight preference.

Rocuronium should be part of our pharmacological kit as a valid alternative for all cases in which a neuromuscolar blockade without side effects, with rapid onset and long duration of action is desiderable.

Thanks to:

- *Sean Davis "Suxamethonium versus Rocuronium in rapid sequence induction: Dispelling common myths."*
- *Amit Maini: "ED RSI: Rocuronium vs Suxamethonium"*

Who inspired this post!

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