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Steroids to reduce high fever in head injury – is it acceptable?

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Steroids to reduce high fever in head injury – is it acceptable?

Dear Sir,

I will thank Dr Llompart- Pou and co-authors for the valuable and adequate comments on the use of steroids in head injured patients. In principle I share your view. Steroids should not be used as a general therapy to head injured patients due to its potential side effects, as supported by the large clinical MRC CRASH study referred by you. As also commented by you, steroid treatment will induce deviation from normal physiology, and therefore is against the very essence of the Lund therapy. This does not mean, however, that the use of steroids is prohibited under all circumstances. I will explain why steroid treatment still was accepted under specific conditions in the Lund therapy (1).

Mainly due to less lung complications, the number of patients with high fever has been reduced with the Lund therapy (1), but patients with extravascular blood or large posttraumatic cerebral inflammation or direct hypothalamic damage, may still suffer from high fever. As the effect of paracetamol is small, active cooling and steroids are the only known ways to effectively reduce a high temperature. This gives us 3 choices 1) accept the high fever, 2) use active cooling or 3) treat fever with a bolus dose of steroids. All 3 choices comprise side effects, and we are on the horns of a dilemma, as we do not know the dignity and the importance of these effects for outcome of the 3 choices.

The current literature strongly supports the view that high fever is deleterious and lowering of a high fever will improve outcome for the head injured patient (2). If accepting this view, we have to choose between active cooling and steroids. By creating a difference between the set

thermostat temperature and body temperature, active cooling reduces temperature in an unphysiological way, activating endocrine, autonomic and motor systems - also the deeply sedated patients will be exposed to such adaptations and may be extremely stressed. This situation must be evaluated against a condition where the temperature has been lowered in a more physiological way, by resetting the thermostat temperature level towards more normal values.

This is the reason for why steroid therapy is used in the Lund concept instead of active cooling. After all, the adverse effects of one bolus dose of a steroid (1) must be small compared with the more long term steroid treatment used in clinical studies (3), and most likely also smaller than those induced by long term active cooling. The temperature-reducing effect of one bolus dose is marked and often remaining. The patient becomes more stable hemodynamically and a raised ICP is often reduced. The induced hyperglycemia can be treated by insulin and a transient adrenal suppression may be compensated by a small dose of hydrocortisone. The number of patients suffering from high fever (>38.5 C) when treated strictly according to the Lund Concept is relatively few (1), and number of candidates to be treated with the recommended single bolus dose of Solu-Medrol therefore will be limited.

Sincerely

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