Editorial

Immediate interruption of sedation for post-operative patients in the ICU reduces time on mechanical ventilation

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Traditionally intensive care patients undergoing invasive mechanical ventilation have been sedated. In the last two decades increasing focus has been on reducing sedation for critically ill patients. Brook and colleagues reported a reduction in length of stay by implementing a nurse drive sedation protocol (1). This trial was very simple just giving the nurses the possibility to adjust the sedation to the patients need without having to contact a doctor. Also the trial made bolus doses possible instead of continuous infusion. Kress and colleagues reported reduced time on mechanical ventilation by performing a daily interruption of sedation (2). The intervention group was kept sedated to RAMSAY 3–4 and received a daily wake up trial. The sedation was afterwards stated on half the previous dose ensuring that patients were not over sedated. These finding was confirmed and further findings reported by Girard and colleagues in the ABC trial (3). This trial was a multicenter trial investigating the same endpoints as in the Kress trial. But this time with enough power to report a mortality benefit by doing a daily wake up trial. In both groups patients received a spontaneous breathing trial focusing on the importance in all patients to investigate the readiness to be extubated (4). In 2010 our group reported data from a randomized controlled trial investigating the effect of a protocol with no sedation compared to sedation with daily wake up trial (5). The trial was a pragmatic designed trial including both medical and surgical patients with an expected need of mechanical ventilation for more than 24 hours. We reported a reduction in time on mechanical ventilation, a reduction in length of stay in the ICU as well as in the hospital with a strategy of no sedation compared to sedation with daily wake up.

Several trials have reported some positive effect of sedatives with shorter half-life in the post-operative setting (6). It would therefore be interesting to offer the no sedation strategy to surgical patients in the immediate post-operative setting as well as in the traditional intensive care setting. Chanques and colleagues performed a very interesting randomized multicenter trial investigating the effect of immediate interruption of sedation for acute post-operative patients admitted to the ICU (7). In the present trial they randomized 137 abdominal surgical patients expected to require more than 12 hours post-operative mechanical ventilation. In the intervention group sedation was stopped after randomization. Compared to the control group where sedation was stopped when the treating team deemed it safe to stop sedatives. The authors reported a huge reduction in time receiving mechanical ventilation: 8 hours in the intervention group compared to 50 hours in the usual care group. This is a very important finding with a very clear message: stop sedation as quickly as possible. Also this is a change in culture; historically it was believed that patients needed rest to recover. Now patients are woken up and mobilized as early as possible with a huge beneficial effect (8). Chanques and colleagues reported that most post-operative abdominal surgical patients with no severe complications can be woken up and extubated early quite safely. It is obvious to believe that these findings can be safely extrapolated and implemented for other post-operative patients admitted to the intensive care unit. A

little surprisingly no difference was reported in intensive care unit length of stay. But a reduction was seen in days in hospital with shorter stay in the intervention group. No difference was reported in mortality which was also not an endpoint with less severe sick patients.

Some limitations deserved to be mentioned when interpreting this trial. First of all the power calculation is problematic. The investigators set an absolute difference of 72 hours between groups as clinical relevant with a standard deviation of 140 hours. A difference of 72 hours seems very high when international guidelines recommend daily wake up and thereby potential extubation within 24 hours (9). This puts the trial in a very high risk of being underpowered. Secondly although the control group received standard care first sedation stop was after a median time of 33 hours. Again this seems as being substandard care, considering the international guideline recommending ICU teams to do a daily wake up trial. Especially in less severe sick ICU patients without ARDS also a spontaneous breathing trial should have been performed.

Planning a randomized controlled trial is a challenging task. Both intervention group and control group need to be within standard care to be ethical correct. Still positive results depend on separation between groups. If difference between groups is small the risk of reporting no effect of the intervention is high. Only a huge number of patients could prevent this. Is it ethical correct to perform a trial where the control group receives les optimal care? Think of the Schweickert 2009 Lancet trial reporting a beneficial effect of early occupational therapy (8). The problem was that the intervention group received first occupational therapy after 1.5 days compared to the control group receiving first occupational therapy after 7.4 days. Thus occupational therapy was initiated in the intervention group a week before patients in the control group received the first training session. This was not part of the protocol but standard care in the participating unit. This trial would be difficult to perform again in other units since the early group obviously receives a better care than the control group.

The same goes for the present trial by Chanques and colleagues (7). The fact that the investigators could turn off sedation 15 minutes after randomization in the intervention group compared to 33 hours in the control group point in the direction of suboptimal care in the control group. However the suboptimal care in the control group was not dictated by the protocol but standard care in the treating units. Although it seems strange to sedate patients 33 hours when inclusion criteria was expected time on mechanical ventilation between 12–24 hours.

But sometimes trials like the present needs to be done in order to point out the obvious errors in standard care. Trials like this paves the road for optimal patient care. Now treating unit needs to grab the message and turn off sedation for the sake of the patients.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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