**Supplemental Table 9. Study Design of Randomized Controlled Trial used for “standardized and/or protocol-based (analgesia/analgosedation) pain assessment and management programs” Recommendation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Trial | Outcomes assessed | Study Population | Intervention | Control |
| Breen D, Karabinis A, Malbrain M, et al. *Crit Care* 2005;9:R200-10 [1] | MV duration; ICU LOS; Dose of sedatives; dose of opioids | Medical/surgical ICU | Remifentanil-based sedation (57 patients) | Midazolam-based sedation (48 patients) |
| Brook AD, Ahrens TS, Schaiff R, et al. *Crit Care Med* 1999;27:2609-2615 [2] | MV duration, ICU LOS | Medical ICU | Protocolized pain and sedation assessment and treatment (162 patients) | Tradition practice (159 patients) |
| Karabinis A, Mandragos K, Stergiopoulos S, et al: *Crit Care* 2004;8:R268-80 [3] | MV duration, PIS, opioid exposure, sedative exposure, CV ADR | Neurointensive care unit with brain injury | Analgesia-based sedation with remifentanil (84 patients) | Standard hypnotic-based regimen (77 patients) |
| Rozendaal FW, Spronk PE, Snellen FF, et al: *Intensive Care Med* 2009;35:291-298 [4] | Pain intensity scores, ICU LOS, MV duration, sedative exposure, opioid exposure, CV ADR | Medical/surgical ICU | Remifentanil-propofol-based (96 patients) | Conventional practice (109 patients) |
| Strom T, Martinussen T, Toft P: *Lancet* 2010;375:475-480 [5] | ICU LOS, sedative exposure, opioid exposure, nosocomial infection, MV duration | Medical/surgical ICU | Analgesia-first, no sedation (55 patients) | Conventional sedation with daily sedation interruption (58 patients) |

References

1. Breen D, Karabinis A, Malbrain M, Morais R, Albrecht S, Jarnvig I-L, Parkinson P, Kirkham AJT: Decreased duration of mechanical ventilation when comparing analgesia-based sedation using remifentanil with standard hypnotic-based sedation for up to 10 days in intensive care unit patients: a randomised trial [ISRCTN47583497]. *Crit Care* 2005, 9(3):R200-210.

2. Brook AD, Ahrens TS, Schaiff R, Prentice D, Sherman G, Shannon W, Kollef MH: Effect of a nursing-implemented sedation protocol on the duration of mechanical ventilation. *Crit Care Med* 1999, 27(12):2609-2615.

3. Karabinis A, Mandragos K, Stergiopoulos S, Komnos A, Soukup J, Speelberg B, Kirkham AJT: Safety and efficacy of analgesia-based sedation with remifentanil versus standard hypnotic-based regimens in intensive care unit patients with brain injuries: a randomised, controlled trial [ISRCTN50308308]. *Crit Care* 2004, 8(4):R268-280.

4. Rozendaal FW, Spronk PE, Snellen FF, Schoen A, van Zanten ARH, Foudraine NA, Mulder PGH, Bakker J, Ulti Si: Remifentanil-propofol analgo-sedation shortens duration of ventilation and length of ICU stay compared to a conventional regimen: a centre randomised, cross-over, open-label study in the Netherlands. *Intensive Care Med* 2009, 35(2):291-298.

5. Strøm T, Martinussen T, Toft P: A protocol of no sedation for critically ill patients receiving mechanical ventilation: a randomised trial. *Lancet* 2010, 375(9713):475-480.