



Comparison and Evaluation of the Effects of Administration of Postoperative Non-Invasive Mechanical Ventilation Methods-in for a Penny, in for a Pound?

Ameliyat Sonrası Non-İnvasiv Mekanik Ventilasyon Yöntemlerinin Uygulanmasının Etkilerinin Karşılaştırılması ve Değerlendirilmesi- Herşeye Rağmen Devam Edilmeli mi?

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Dear Editor,

We read with interest the article by Yağlıoğlu et al. (1) regarding the use of non-invasive ventilation (NIV) support in patients immediately after abdominal surgical procedures, where the application of different ventilatory support methods in surgical patients at a risk of developing respiratory failure was compared. We applaud the authors for their efforts but feel that there are a number of issues raised that warrant further discussion.

As enthusiastic supporters of the use of NIV in post-operative patients, we acknowledge that one of the great barriers to its more widespread application is the uncertainty that exists over which mode of support should be used in which patients. The present study compared the effects of several different modes-bilevel positive airway pressure (BiPAP), high-flow continuous positive airway pressure (CPAP), low-flow CPAP and physiotherapy techniques-on a number of patient-related endpoints post-operatively, but unfortunately the results obtained provided no real information that helps guide clinical decision making.

The comparison of these four modes revealed no significant differences between the four interventions, which may have been due to a number of reasons. The sample size was very small, particularly when the four treatment arms were used, and no power calculation to ascertain a clinical effect was described. Non-clinical end points, such as PaO₂, PaCO₂ and respiratory rate, were studied, but meaningful clinical endpoints in this setting, such as respiratory failure, need for reintubation and length of stay, were not examined. The study focussed only on patients with chronic obstructive pulmonary disease, although no objective data on disease severity is provided, and the median American Society of Anaesthesiologists rating of II suggests that included patients had only mild disease. All these factors may have contributed to the equivocal results obtained.

We feel that the most striking issue is the duration for which NIV was applied. There are several studies that demonstrate a benefit from NIV use post-operatively across a range of surgical specialties (2, 3). However, most of these studies utilise much longer periods of NIV application, as long as 12 to 24 h in some cases (4, 5), and significant benefits to clinical patient outcomes are widely seen as a result. We feel that a treatment period of 1 h is far too less to provide any meaningful or lasting benefit to this patient group, and we also feel that this reinforces the widely held maxim that greater benefits are seen with concerted, committed treatment in high volume centres (6). The time-honoured English proverb 'in for a penny, in for a pound' is very fitting in this context.

We agree that further work is needed to compare the relative benefits of CPAP, BiPAP and the emerging high-flow nasal cannula oxygen therapy in surgical populations to enhance our understanding and guide clinical practice. Unfortunately, it is our opinion that the current study falls short of drawing any conclusions that add to what is already known in this area.

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Author's Reply

Dear Editor,

First and foremost, we are honored that Glossop et al. (1) read our study with interest. In return, we have read their critics on our study with attention. There are points we agree on with Glossop et al. (1) however those are the limitations of the study, such as our need for a higher study population, or the lack of power analysis as it was a preliminary study. We needed to extend the follow-up to the ward period. We are continuing the study, as it is an ongoing study with higher study population.

We should explain the reasons of the points we do not agree on with Glossop et al. (1). Firstly, we have planned the study on the patients who underwent upper abdominal surgery aiming to keep lung areas open by administering prophylactic noninvasive mechanical ventilation (NIV) in the first 60th postoperative minute in the recovery room (2). In contrast to other studies, we have included the patients who were planned to be released to the ward following the recovery room but not the patients who were planned to be transported to the postoperative intensive care unit. Thus, we have administered NIV only for 60 minutes as it is the mean duration spent by the patients in the recovery room before they are released to the ward.

It is clear that the number of patients included in the study is not enough to constitute a guide that will change the clinic routine. However, we believe it is important in terms of giving preliminary information. Hypoventilation related atelectasis start to occur in the first postoperative hours following upper abdominal surgeries, even if an effective postoperative analgesia is achieved (3). In addition, in order to prevent a possible harm to the anastomosis following upper abdominal surgery, administration of NIV with high airway pressures must be avoided. To once again deduce from our study, in patients who underwent upper abdominal surgery, administration of NIV for 60 minutes in the recovery room following post-anesthetic extubation enables them to be released to the ward in better respiratory conditions. As perfectly stated in a Turkish idiom "the stone we throw is worth the bird we scare".

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