Nasal Bridge Oximetry

An Alternative Site in Poor Peripheral Pulsations

To the Editor:

Noninvasive monitoring of oxygen saturation in critically ill patients provides important data for optimal management. This is usually measured with a pulse oximeter probe placed on the finger, toe, or earlobe. Alternatives to noninvasive monitoring of oxygen saturation include arterial line placement or frequent arterial punctures, both of which have been associated with significant morbidity. We report the use of a disposable flexible oximetry probe draped over a patient’s nasal bridge after we failed to obtain a saturation or pulse signal from probes placed in routine locations.

The patient was a 55-year-old diabetic female with severe peripheral vascular disease who required mechanical ventilation for respiratory failure due to sepsis. The patient was not hypertensive but required mechanical ventilation for respiratory distress and hypoxemia. The patient was ventilated with 100% FiO2. We were unable to obtain oxygen saturation for 8 h using standard commercially available probes on the fingers, toes, and earlobes. We obtained an arterial blood gas measurement with difficulty due to poor peripheral pulses. We then placed a pulse oximeter sensor (Oxsensor-D25; Nellcor Corp; Hayward, CA) over the bridge of the patient’s nose and obtained good pulse tracings and saturations consistent with the saturation measured from the arterial blood gas. The sensor was trimmed to improve the fit over the nasal bridge. Using the nasal bridge oximeter, we were able to decrease the FiO2 from 100% to 50% over the next several hours.

In patients presenting with hypoxia and poor circulatory states such as peripheral vascular disease, routine oximetry placement often leads to difficulties in signal detection. In these circumstances, more invasive methods are frequently utilized and are associated with significant morbidity and complications, such as limb ischemia.

Pulse oximetry reflects arterial oxygen saturation (SO2), allowing rapid adjustment of FiO2 and ventilator settings in the management of mechanical ventilation and during weaning attempts. Pulse oximeter probes require a pulsatile blood flow for accurate measurement. The most likely explanation for obtaining a good pulse signal with nasal bridge oximeter in our patient may be due to relatively preserved pulsatile blood flow to the nose, compared to fingers, toes, and earlobes in hypoxia and poor peripheral blood flow states. Severinghaus and colleagues have reported that the ear probes have faster and more accurate responses than those of finger probes when tested using suddenly induced profound hypoxic plates. However, their study for accuracy did not include the nasal probes.

In conclusion, if unable to obtain pulse oxygen saturation from routine sites, before resorting to invasive oxygen monitoring, one should consider nasal bridge oximetry.

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Lung Cancer Staging—A Proposal

To the Editor:

The newly revised lung cancer staging system represents a major improvement. The new system reflects 10 years of clinical experience and progress in multidisciplinary care since adoption of the 1996 revision. We have now progressed from four stages in 1974, through six stages plus substages in 1986, and arrived at eight stages plus substages in 1997, counting occult carcinoma as stage 0 in each system.

However, important limitations pertain even to the latest modification. Tumors with very different tumor-node-metastasis (TNM) designations are still lumped into categories based on similar survival rates. Meanwhile, survival rates will undoubtedly continue to change, reflecting advances in surgery, radiotherapy, and chemotherapy. Moreover, survival rates are likely to change differentially, depending on the exact impact of the new treatments. T4N3M0 tumors may respond to new locally active measures, while improvement in survival for T1N3M0 tumors will require measures directed against a small primary lesion and contralateral lymph node metastases, implying lymphatic dissemination. Nevertheless, these two TNM descriptors are absorbed into stage IIIIB, along with no fewer than five other TNM subsets.

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