Incorporating Capnography Monitoring in a Dental Sedation Practice

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The use of conscious sedation during dental treatment has been on the rise over the past several years. My partner and I at Minnesota Sedation Dental recognize that a large portion of the population do not seek out regular dental care because of the anxiety they feel when going to the dentist. Mildly sedating patients during procedures can allow many patients to benefit from routine dental care.

Some of the benefits of sedating patients during dental procedures can include:

- **Reduced patient fears and anxiety about dental procedures**—Some patients delay or put off dental procedures because of fear and anxiety. Sedating patients helps them to overcome those fears.
- **Allows for longer procedures**—Many patients are more comfortable while sedated and more willing to endure longer procedures, thus requiring fewer visits.
- **Increased patient comfort**—Patients will be in a relaxed state and may have little memory of the dental procedure afterward.
- **Better treatment outcomes**—With a relaxed patient, the dentist can concentrate on performing the dental procedure with more accuracy without having to worry about patient movements or gagging.

There are a few options regarding the type of conscious sedation used during dental treatment. The two main categories are oral conscious sedation and intravenous conscious sedation. A short consultation in which the patient's fears and anxieties are addressed, and his or her medical history is reviewed, will determine which level of conscious sedation will work best for the patient.

PREVENTING RESPIRATORY EVENTS

There are many benefits to conscious sedation. However, as with any medical intervention, the benefits need to be weighed against the risks. Sedating patients results in a depressed level of consciousness, allowing many patients to undergo dental procedures that they may otherwise not be able to endure. In some cases, however, patients can also experience a depressed level of breathing.

Fortunately, dentists are now starting to recognize the importance of using a capnograph to monitor the breathing rate and $EtCO_2$ levels of patients who are under sedation. A capnograph provides the earliest indicator of an adverse breathing event. Both the American Association of Oral and Maxillofacial Surgeons (AAOMS) and the American Society of Anesthesiology (ASA) require the use of capnography for patients under sedation.[1,2] Additionally, the American Dental Association may be considering revising its guidelines to require the use of capnography on all sedated patients.

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After deciding to purchase a capnography monitor for use in our practice, my attention turned to selecting a monitor that would work best in our clinic. The selection criteria included:

- Fast detection of respiratory rate and end-tidal CO_2 ($EtCO_2$)—Some monitors require a few minutes to warm up before being operational; we didn't want to have to eat up valuable time waiting.
- Highly visible display—It's important for my staff and me to be able to read the monitor from several feet away.
- Easy to use—The monitor had to be simple enough to operate with minimal training.
- Quiet operation—A monitor that emitted a lot of noise could be a distraction in the procedure room and make the patient anxious.
- Cost effective to purchase and operate—We didn't want the monitor to add material expense to our practice or our patients.
- Portability—Our practice has two suites in which we use sedation; only one is used at a time. We wanted a monitor we could easily transport between suites.

Based on these criteria, the capnography device we selected was Nonin Medical's RespSense™ Capnography Monitor. Aside from exceeding all of our selection criteria, the RespSense monitor came with a three-year warranty; many other systems had only a one-year warranty. The RespSense was also one of the smaller units we evaluated. It made it easy to move from room to room and it doesn't take up much storage space. In most cases, we set the RespSense monitor on a procedure table next to the patient, but it can also be mounted on a pole if needed.

CANNULA SELECTION

Selecting and using the right cannula is also important in allowing dentists to work in the mouth but still get an accurate reading. One of the advantages of the Nonin RespSense capnography monitor is that it doesn't require the use of a proprietary cannula. We were able to price and sample various types of cannulae until we found one that worked (a Salter nasal/oral sampling cannula).

Patients generally handle the cannula well. In fact, in many cases they are more at ease knowing that they are being closely monitored during the procedure. One minor complaint that patients have is that the cannula tickles their nose.

CONCLUSION

Minnesota Sedation Dental uses capnography on all of our sedated patients as part of our standard practice. No monitor can take the place of direct supervision of the patient, but capnography certainly makes it a lot easier to know if the patient is breathing or not. Although few patients understand the science of capnography, they do appreciate the value capnography provides in helping to monitor their breathing, thereby helping to ensure their safety.

Mild/moderate sedation is very safe but there are risks. The vast majority of tragedies associated with dental sedation begin with the patient not breathing for one reason or another. Capnography monitoring helps to identify breathing problems quickly and helps keep patients safe. Additionally, the cost of capnography is negligible when compared to the added safety it brings to the patient and the practice.

REFERENCES

1. American Association of Oral and Maxillofacial Surgeons, Parameters of Care: Clinical Practice Guidelines for Oral and Maxillofacial Surgery. AAOMS ParCare 2012
2. American Society of Anesthesiology Standards for Basic Anesthetic Monitoring, Committee of Origin: Standards and Practice Parameters, amended October 20th, 2010

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