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Vasovagal Syncope During Venipuncture: Alleviating Symptoms Through Leg Muscle Tension and Moving Toes Sequentially

Velina Andrews

Introduction of the Problem

Although venipuncture is seen as a safe and easy procedure, there are cases where patients develop symptoms of weakness, lightheadedness, nausea and most seriously, a full syncopal episode when undergoing venipuncture. These symptoms are known as Vasovagal Responses (VVR) or Vasovagal Syncope (VVS), and are distressing for the patient, stressful for the clinician performing the venipuncture and disruptive to clinic flow. This project examined whether techniques such as simple leg extension along with systematic wiggling of toes can reduce or completely abort these symptoms in patients as they undergo venipuncture procedures.

Literature Review

Vasovagal, or Neurally Mediated Syncope, is the main type of syncope observed in clinical practices and occurs when a compensatory tachycardia helps to maintain the blood pressure initially, which later drops as the heart rate decreases and which then contributes to lightheadedness and syncope (Han, et al., 2006). Deacon & Abramowitz (2005) observed that pain, fear of needles, dehydration, blood phobias all contribute to symptoms of VVR/VVS.

Fear has been documented as a major cause of VVR/VVS (Meade, et al., 1996) as well as anxiety, which can result in patients avoiding necessary medical treatments or even refusing to donate blood (Deacon & Abramowitz, 2005). Studies done in the past sought to reduce severity of the symptoms of VVR/VVS by promoting handgrips, systematic tightening of arms and legs, leg crossing, doing squats and applying cold compresses to patients' heads as they lay down.

Some of these methods might help to lessen the symptoms of VVR/VVS, but in some instances they would not be practical to use. In the healthcare setting, the symptomatic patient is uncomfortable, the phlebotomist must stop the procedure to aid the patient, and clinic routines are disrupted for a period of time until the symptoms resolve. Providing methods that are easily incorporated to treat the problem immediately will help promote rapid resolution of the symptoms, allow for quicker recovery for the patient and be less disruptive to busy clinic routines. Moline et al. (2020) reported that including Mindfulness Stress Reduction Techniques may also be of help in decreasing or eliminating VVR/VVS altogether. Promoting rapid reduction of VVR/VVS has been shown to help reduce the discomfort, delay, and distress associated with this problem.

Project Methods

It is known that patients who are young with little or no experience with phlebotomy, those with low body weight and exhibiting anxiety over needles are more likely to experience VVR/VVS. Phlebotomists and clinicians received prior training to identify patients who were likely to experience VVR/VVS, and also in the methods to use when a patient showed signs of VVR/VVS during their procedures. The patients who did show symptoms of VVR/VVS were directed to extend their legs, focus closely on their toes, and wiggle them systematically while the venipuncture was performed. Patients would continue these exercises until the symptoms resolved. The phlebotomist recorded the patient responses at the end of the procedure to determine if the response was successful, equivocal, or failed.

Evaluation

The focus of this project was primarily on both male and female patients 16 years of age and older. Patients less than 15 years of age were excluded from the project as younger patients

might not be able to follow through with directions, or parents may prefer not to have their child participate in the project. Phlebotomists were instructed to observe for patients who fit the profile of a patient who may experience VVR/VVS early in their interaction with the patient. They were given instructions in the methods to use to manage the symptoms, and to track patients according to date, age and sex, along with an evaluation of the outcome of the episode. A total of 1200 patients of varying age groups presented to the clinics during the evaluation period. Of those, fifteen patients exhibited symptoms of VVR/VVS prior to or during the venipuncture procedure. Five patients did experience mild symptoms which continued for a brief period of time after the venipuncture and were listed as an equivocal response. Nine patients had no symptoms at all, and only one patient did not respond to the maneuvers and needed extended time to recover from the episode and was thus considered a failed response.

The phlebotomists generally found that engaging the patient early and having them focus right away on their legs and wiggling toes was easy and alleviated any anxiety patients exhibited. Interestingly, feedback showed that most patients were amused by wiggling their toes, which eased their apprehension. Patients who developed symptoms of VVR/VVS were compliant with directions given to them by the phlebotomists. At the completion of the project, phlebotomists were asked to complete a Likert Scale to determine effectiveness and satisfaction with the techniques. The phlebotomists strongly agreed about the ease of use, patient satisfaction and likelihood to use in the future. One phlebotomist reported neither agree nor disagree with the effectiveness of the technique.

Overall, the response from phlebotomists who used the techniques was very positive. They reported ease of use of the methods, easy to incorporate into their routine and likelihood to continue using the methods in their work, primarily because it was easy to remember.

Phlebotomists reported that engaging patients and instructing them in the exercises resulted in patients who were very happy with the resolution of symptoms. A suggestion was made to use the techniques to distract from the pain associated with venipunctures for those fearful of needles, not just with VVR/VVS symptoms.

Impact on Practice

The primary anticipated impact on the healthcare setting would be to see fewer serious VVR/VVS episodes occurring, resulting in a more comfortable and controlled experience for the patient, the phlebotomist, and the clinic. Patients who experience VVR/VVS require more time and attention from the phlebotomist which in turn delays other scheduled appointments and becomes disruptive to clinic functions. When the maneuvers are performed successfully, the phlebotomist and clinic staff would not have to spend extended amounts of time recovering the patient as they normally would expect to do. Clinic schedules would have less disruptions which in turn allows better patient flow with fewer distractions. Patients expressed satisfaction with the maneuvers and the resolution of unpleasant symptoms. A further positive result is that patients would be empowered to control the unpleasant symptoms of VVR/VVS in the future by adopting these simple maneuvers. The project can be replicated easily, and the methodology is simple to incorporate into any clinic setting with only minimal training for phlebotomists or clinicians. Future plans would be to introduce the maneuvers to training programs for clinicians as a tool to use in these circumstances as they learn the skill of venipuncture and IV insertions. It is anticipated that these simple maneuvers would facilitate better outcomes for patients and staff in the clinical settings.

Conclusion

VVR/VVS with venipuncture occurs infrequently in the blood lab setting. When a patient exhibits these symptoms, it can be alarming for both the patient and the phlebotomist. Having the ability to recognize and control symptoms immediately as they occur is beneficial in that addressing symptoms as they happen can stop them from advancing into more complicated problems like full syncopal episodes.

When symptoms are managed immediately and easily, there will be fewer disruptions to the clinic routines, easing the flow of patients with minimal interruptions. Empowering the clinician with simple and effective techniques that help counteract the symptoms of VVR/VVS makes their job easier as well. When used immediately, these methods can counteract and mitigate VVR/VVS symptoms resulting in a patient who is treated efficiently and effectively in a comfortable manner. With the impact of COVID-19 restrictions, many ancillary labs were unexpectedly shut down, which greatly diminished the sample size. Although the end results of this project were mostly favorable, in the future, it is anticipated that these methods be used in larger institutions with larger sample sizes.

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