

A Role for Nurses during Echocardiography Procedure in Ethnically Sensitive Settings

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Abstract

Echocardiography is the main procedure for diagnosis in both acquired and congenital heart diseases (CHD). In pediatric cardiology, the surgeons accept more than 80% of children with CHD for surgery just based on echocardiography investigation. The role of nurses before, during, and after the procedure is well known since 1982. Their role is becoming more and more challenging with the development of technology and easier manipulation during echocardiography procedure. In this practice point, we are highlighting a new role for female cardiac nurses in the outpatient clinical setting. This new nurse's role is to handle the probe during the echocardiography procedure for the adolescent girls by a female nurse.

Keywords: Echocardiography, education, ethnicity, focused cardiac ultrasound, healthcare access, nurse screening

INTRODUCTION

The Arab nation has a different culture from the rest of the world. The attitude and behavior of females, especially the adolescents could be very complicated when it comes to doing any clinical examination or medical procedure or investigation related to their private body parts. They would feel much more relaxed when a female medical or nursing staff examines them. This perception is because the adolescent females are very sensitive to the extent that they may not give their consent, for example, to do echocardiography procedure. Earlier studies on the role of nurses performing echocardiography are feasible. In the United States, nurses assessed left ventricular systolic function in the setting of predominant coronary artery disease.^[1] Furthermore, in the middle-income countries, studies have concentrated on finding of mild valvular changes because of asymptomatic rheumatic heart disease.^[2,3] This new nurse's role is to handle the probe during the echocardiography procedure for the adolescent girls by a female nurse.

HISTORY OF ECHOCARDIOGRAPHY

Echocardiography has a vital role in the diagnosis and management of clinical cardiology both in adults and pediatrics since the application of ultrasound in the examination of the

heart by Inge Edler and Hellmuth Hertz in October 1953.^[4] Since echocardiographic application and practice has been launched, the addition of registered nursing personnel to the echocardiography team has improved the assessment and diagnosis of cardiovascular diseases. In the 1980s, nurses started training in clinical echocardiography. The training is accomplished by observing nursing functions, then establishing proficiency under direct supervision by cardiologists. The performance of echocardiography by nurses offers them a professional choice in helping the patients and in assisting the practitioners.

ECHOCARDIOGRAPHY PROCEDURE

Echocardiography or only heart ultrasound is a noninvasive and painless test to examine the heart anatomy and function. It has an essential role in the diagnosis of cardiac problems

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both acquired and congenital heart diseases (CHD). Echocardiography is a cardiac ultrasound that uses phased array probes/transducers to get between the ribs with high-frequency (2.5–10 MHz) sound waves to image the cardiac chambers' size and function. It is used to visualize the atrioventricular valves and main great arteries with their valves plus the inferior and superior vena cavae and pulmonary veins. Furthermore, echocardiography can identify cardiac tumors and cardiomyopathies; it can be helpful in assessing the complications of many systemic diseases such as mucocutaneous lymph node syndrome, rheumatic fever, systemic lupus erythematosus, and renal failure to detect pericardial effusion. It is also helpful during interventional cardiac catheterization, for example, device closure of the atrial septal defect and patent ductus arteriosus and in aortic and pulmonary balloon valvoplasties.

NURSING RESPONSIBILITIES DURING ECHOCARDIOGRAPHY

Nurses have an essential role and responsibilities before, during, and after echocardiography procedure. They serve both hospital inpatients and clinic outpatients.^[5] The nurse can take consents after the explanation of the procedure. Nurses' role also include description of the procedure to the patients and their parents, do intravenous access for sonicated saline, microsphere contrast, and medication administration, for example, when echocardiography is performed under sedation. Nurses can help patients to calm down and cooperate under the procedure, after the placement of the patients in their left side and/or supine position in full privacy state, especially the females. Furthermore, they help in applying the conductive gel to the chest area and remove the gel after the procedure. Nurses monitor the vital signs and position patients during transesophageal and stress echocardiography.^[6] In this part of the world, the Arabic parents of female children and adolescents regularly ask if there is a possibility for female nurses or female sonographers to do echocardiography because of social and religious reasons. We have thought about this and decided to engage our female registered nurse to do the echocardiography. She has been attending and running the pediatric cardiac clinic at Al Ain Hospital for more than 9 years.

The nurse acquired the necessary knowledge on how to explain the procedure and some of the simple CHD to the parents. She carries out the electrocardiogram (ECG) and organizes and collects the results of the 48-h Holter and Event ECG recorder monitors. She is the main organizer and planner for the pediatric cardiac clinic plus communicates with the parents. We started training this nurse on how to help more practically in doing the echocardiography.

We describe a new contribution of registered nurses during the procedure of the echocardiography. For the recent few years, we have started teaching the basic echocardiographic views and interpretation of some cardiac defects. The nurse

started placing and handling the probe under the guidance of the pediatric cardiologist. The trained nurse is sitting side by side with the mother in the front and to the left side of the patient to manipulate the probe in the different known five basic echocardiographic views: left long parasternal axis, left short parasternal axis, mitral or four chamber, suprasternal, and subcostal views. The child feels more secure and relaxed when both the female nurse and her mother sitting together on the left side and in front of the female child. The cardiologist is seated behind and to the right of the patient looking at the echocardiography screen [Figure 1]. The cardiologist's role is to advise the nurse regarding the manipulation of the probe to get the best views and make the interpretation of the echocardiograms. We have excellent feedback from the parents and their female children and adolescents and are happy with the performance of the registered nurse.

CONCLUSIONS

This report underscores a new role for nurses at clinical ultrasound in an ethnically sensitive setting. A properly trained female nurse assisting a male cardiologist during echocardiography could put at ease older female children and adolescents who are usually very sensitive not to expose their chest to a male pediatric cardiologist. Therefore, an experienced nurse can be a valuable asset when a qualified female cardiologist or female echocardiographer technician is readily available.

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Authors' contribution

The idea of the paper was conceived and developed by EHA. Both authors reviewed and agreed on the final version.



Figure 1: The seating arrangements of the cardiologist behind the patient and both the mother/guardian and the nurse on the left and front of the female child. The trained nurse positions the probe at the agreed standard positions for the cardiologist to capture the appropriate images and data. Thus, the patient is made to feel comfortable by not being exposed to male operator

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Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

Not applicable, No patients are shown in the illustration.

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