

**Final Report**  
**Reducing Anxiety in Patients Awaiting Elective Cardiac Catheterization**  
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**Background**

There is ample evidence that patients are anxious when scheduled for a cardiac catheterization(CATH). Some research has shown that psychological stress associated with CATH can be a result of fear of the unknown, fear of complications from the procedure, fear of the implication of the results of the procedure, and generalized fear due to the seriousness of heart disease.

Emotional stress has been identified as a contributor to the atherosclerotic disease process. It is well known that the stress response results in an increase in circulating catecholamines. Autonomic nervous system activation may predispose individuals to clinical events by: promoting endothelial dysfunction, influencing extrinsic factors triggering plaque rupture, increasing platelet aggregation, increasing myocardial oxygen demands, decreasing coronary blood supply or triggering lethal arrhythmias. These physiological consequences of emotional stress may be disastrous for patients awaiting CATH.

A number of approaches have been identified to try and alleviate patient anxiety in the immediate pre-CATH period. Procedural and/or sensory information immediately prior to CATH have been found to decrease patient anxiety and psychophysiological arousal. In addition, matching the preparatory information with the patient's coping style has also been associated with reduced anxiety. Research related to CATH-induced anxiety has focused primarily on the 24-hour period immediately before the test. In many studies, anxiety has been measured and interventions provided on the actual day of the test only. Therefore, most of the literature in this area refers to a waiting period that is just hours in duration. No studies have examined an intervention provided throughout the entire waiting period for elective CATH.

For approximately twenty years the telephone has been a viable means of communication between health care providers and the public and patients perceive health care to be more readily accessible when the telephone system exists. Research results indicate that a supportive-educative telephone program can reduce patient anxiety and improve knowledge.

## **Purpose and Design**

The purpose of this study was to decrease anxiety in patients awaiting elective cardiac catheterization through the use of in-person educational nursing support at the beginning of the waiting period along with bi-weekly telephone nursing consultation throughout the duration of the wait for elective cardiac CATH. We hypothesized that patients who received early education and ongoing nursing consultation during the waiting time for CATH, would have lower anxiety and higher quality of life during the wait. This, in turn, may translate into fewer reported physical symptoms such as angina.

The study was a randomized controlled trial with stratification for previous CATH. Consenting subjects were randomly assigned to either a treatment or control group. The treatment group was divided into “first CATH” and “previous CATH” subgroups. The intervention group took part in a detailed information/education session within 1-2 weeks after being placed on the waiting list for elective CATH and received bi-weekly telephone calls during the entire waiting time. The control group will receive the usual care of waiting patients.

## **Results**

Two hundred and forty-six patients were enrolled in this study; 126 in the intervention group and 120 in the usual care group. Females comprised approximately 37% of the patients (n=90) and males comprised 63% (n=156). There were no significant baseline differences between the two groups on demographic or medical history variables. The median wait for CATH in both groups was approximately 14 weeks.

Anxiety, as measured by the State-Trait Anxiety Inventory (STAI), increased in both the intervention and usual care groups over the time from being placed on the waiting list to the time of the CATH procedure, however, the intervention group had a significantly lower anxiety score throughout the waiting period. Based on the STAI, the anxiety levels of patients who had had a previous CATH were higher at the beginning of the waiting period than those who had never had CATH. By the end of the waiting period, the anxiety of patients who had had a previous CATH was unchanged whereas it increased significantly in patients who had never had CATH. Using a second measure of anxiety, a 10-point visual analogue scale, patients in the previous CATH group had a significantly lower anxiety rating at the end of the waiting period than those who had never had CATH. There was no significant effect on anxiety from the intervention.

Two measures of health-related quality of life were used: 1) the Seattle Angina Questionnaire (SAQ), a disease-specific measure and 2) the Medical Outcomes Study SF-36, a generic measure. According to the SAQ, all patients deteriorated over the waiting time with respect to exertional capacity. In particular, there was a significant effect on this aspect of health related quality of life from the nursing intervention in patients who had had a previous CATH compared to those who had not. In the ‘previous CATH’ group the intervention was associated with an improvement in exertional capacity while waiting; there was no impact in the ‘no previous CATH’ group. According to the SF-36, there was a general deterioration in quality of life over the waiting time in both groups but no impact of the intervention.

## **Conclusions**

The key findings from this study are as follows:

1. Anxiety increases over the waiting time for elective cardiac CATH.
2. Anxiety increases more in patients who have never had a CATH than in those who have had a previous CATH.
3. Health related quality of life deteriorates over the waiting time for elective cardiac CATH, particularly in the physical health (as opposed to mental health) domains.
4. A nursing intervention comprised of early education plus telephone support over the waiting time had a positive impact on some aspects of quality of life (e.g. exertional capacity) in patients who had had a previous CATH only.
5. There was no significant impact of the intervention on either anxiety or quality of life for all patients in the treatment group. Only those who had experienced a previous CATH appeared to benefit from this intervention.

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