



PRE CT SCAN ANXIETY AMONG NAÏVE AND PATIENTS WITH REPEATED SCAN

Radiodiagnosis

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ABSTRACT

Aims and Objective—The current study assessed anxiety in adult patients undergoing neuroimaging CT Scan and comparing scan naïve and patients with repeated scan.

Method—Eighty four patients being diagnosed with any non traumatic reasons were rated for the severity of anxiety before going for CT scan.

Results— A total of 86 patients (61 male and 21 female) grouped as exposure naïve (n=56) and another repeat exposure (n=30) patients. The mean age of respective group was 33.82 ± 8.32 years and 41.90 ± 7.94 years and 44:12 and 21:9 male female ratio respectively for groups. The mean HADS Depression score for exposure naïve was 10.71 ± 2.54 and for repeat exposure it was 10.20 ± 1.99 (t value = - .973, df= 84 and p value=.333). Whereas the mean Anxiety scores these two groups was 12.69 ± 2.82 and 10.73 ± 1.99 respectively (t value = 3.373, df= 84 and p value=.001).

Conclusions— This study reveals significant higher anxiety among exposure naïve patients undergoing CT scan of in comparison to patients undergoing repeated scanning.

KEYWORDS

anxiety; CT scan; Scan Naïve.

Introduction

The embarrassment, discomfort and anxiety for the different tests [radiograph, computed tomography (CT) and positron emission tomography (PET)] adds to burden of diagnostic tests among patients of melanoma with lymph node metastases [1]. There is a high emotional and cognitive impact associated to the participation of the diagnostic tests [2]. Many previous studies finds associations between anxiety and diagnostic neuroimaging. In a recent study, it was found that high levels of anxiety were present in most (about 91 %) of the patients and the scores varied according to the imaging examination and to the examination's reason: anxiety level was higher in non-oncological patients (54 %) and in patients waiting to undergo to MRI exams (29 %) [3].

Patient anxiety can be reduced through improves communication between the patient and the imaging staff. Perception survey results indicated that 75% of the respondents experienced a reduction in anxiety. Reducing anxiety may have a positive effect on imaging, because involuntary motion may be reduced and there may be improvement in the patients' comfort and in their overall experience with the imaging procedure [4]. Many studies addressed stress and anxiety among neuroimaging in oncological diagnosis where existing diagnosis itself may be the source of persistent anxiety. This limits understanding of anxiety related neuroimaging itself. Thus, knowledge of anxiety and its relation to medical conditions is limited. For determining factors for the anxiety in patients undergoing CT scan a recent study found female gender and Scan naïve status in comparison to repeated scan experiences are associated with higher anxiety [5]. The goal of the current study is to assess the anxiety among patients undergoing computed tomography of brain in comparison to naïve and repeated CT scan.

Methodology

Participants were 86 patients of either gender between the ages of 18 and 60 years being referred for computed tomography of brain being referred from various other departments for non traumatic reasons (see Table 1 for demographics). Between July 2017 and September 2017, a total of 86 patients consented to participate in this study. All consenting

patients were provided with self reporting personal and socio demographic details. Further they were assessed with Anxiety subset of Hospital Anxiety and depression Scale. The total sample was subdivided into two groups, first group was consisted with patients who were visiting to department of radiodiagnosis for their first CT Scan of brain. Another group was consisted with patients who were visiting for repeated scan of brain. The exclusion criteria included patients with unstable or life-threatening medical conditions.

Procedure and Design

The current study was cross-sectional in design and did not include data collected at follow-up time points.

Tools

Socio-demographic Data Sheet: The socio demographic data sheet included age, gender, religion, Years of education and socio economic class of the patients. It also recorded provisional medical diagnosis. Additionally, few concerns about fear of closed space (claustrophobia), procedure-related radiation, administration of contrast, cost concern, worst expectations were also added.

Hospital Anxiety and Depression Scale (HADS) [6]: this is very well validated scale to assess anxiety and depression among hospitalized patients. It consists of 14 questions, 7 scoring anxiety and 7 scoring depression. We omitted those questions relating to depression. Patients were asked to read each question and place a tick against the reply that came closest to how they had been feeling that day. Each answer was scored 0, 1, 2 or 3. The possible range of scores was therefore 0 to 21, with higher scores indicating greater levels of anxiety. Score of 0-7 is considered normal, scores of 8-10 is borderline abnormal and scores of 11-21 is abnormal case.

Statistical Analyses

The collected data of all patients was statistically analyzed, using Statistical Package for Social Sciences (SPSS, Inc., Chicago, Illinois) version 10.0.

Data analysis included means and standard deviations for each group,

and clinical subgroup of the sample. The parametric t-test was used for continuous variable and chi square test for categorical variables to determine if differences existed between the groups. Statistically significant levels are reported for p values less than or equal to 0.05. Highly significant levels are p values less than .001.

Results:

A total of 86 patients (61 male and 21 female) were included for the study of anxiety associated with CT scan of the brain. The whole sample was grouped on the basis of patients visiting for CT scan of brain for the first time, ie exposure naïve, that consisted of 56 patients and another group was patients who had been already undergone CT scan of head ie repeat exposure, that consisted of 30 patients. The mean age of exposure naïve patient was 33.82 ± 8.32 years, whereas for repeat exposure group the mean age was 41.90 ± 7.94 years). The mean years of education in these two groups was 10.71 ± 2.54 and 10.20 ± 1.86 years respectively for groups of exposure naïve and repeat exposure. There was 44:12 and 21:9 male female ratio respectively for groups, on chi square test it is non significant difference. (Table -1)

The main result was the mean HADS Depression score for exposure naïve was 10.71 ± 2.54 and for the group of repeat exposure it was 10.20 ± 1.99 (t value = -.973, df= 84 and p value=.333). Whereas the mean Anxiety scores of HADS of these two groups, the mean HADS Anxiety score for exposure naïve was 12.69 ± 2.82 and for the group of repeat exposure it was 10.73 ± 1.99 (t value = 3.373, df= 84 and p value=.001).

Discussion

Undergoing CT scan of brain for diagnostic purpose and associated anxiety had not been studied adequately in scientific literature. Presence of anxiety may have a multi factorial origin, be it an expression of trait or state as the anticipated detection of some serious illness compounded with embarrassment, discomfort and cost concern of the procedure may be angiogenic for the patients.

In this present study we found a raised level of anxiety among patients undergoing CT scan of brain, which is consistent with previous research [2, 3]. In this study we categorized our sample as per their experiences of CT scan exposure, either as exposure naïve or as repeated exposure. We hypothetically thought that there may be no difference in these two groups; however repeated exposures to any anxiogenic situations provide habituations. Although we could not match the mean age of the both groups 33.82 ± 8.32 and 41.90 ± 7.94 years respectively for exposure naïve and repeat exposure group. But we had matched other socio demographic profile of gender, years of education, religion and socio economic status. (Table - 1)

Ours study is in accordance to a recent large study [5] on 6122 patients, they also find higher anxiety among patients who had never received a CT scan before showed significantly greater STAI-S values than those with repeat studies (P = .036). This study by Heyer et al also found significant gender difference and higher anxiety among women [5].

Ours study showing that patients across the groups scored similarly on depression subscale of HADS, and only differ significantly on Anxiety subscale of HADS, showing significantly higher anxiety among exposure naïve patients undergoing CT scan of brain. The current study provides further evidence for a link between anxiety reduction and habituation following repeated exposures of any anxiogenic situations.

Although anxiety may not be an exclusive expression of stress of undergoing diagnostic investigations, but may be just as a comorbid conditions of their presenting illness of headache. Many previous studies also have established a unique relation between migraine headaches and anxiety [7,8].

Future research could examine an interaction effect of anxiety severity and diagnostic status on presence of these medical conditions and or diagnostic tests. The current study has a number of limitations, like patient's subjective report of anxiety and depression; the future studies should replicate these findings with more objective measures, such as more comprehensive objective scales, personality assessment for differentiating state and trait anxiety. Secondly, in future studies may plan for prospective design for addressing the issue of outcome.

Conclusion:

In conclusion, This study reveals significant higher anxiety among exposure naïve patients undergoing CT scan of in comparison to patients undergoing repeated CT scanning.

Table : 1

		Exposure naïve (n=56)	Repeat exposure (n=30)	chi square	df	Sig. (2-tailed)
Gender	Male	44	21	.778	1	.434
	Female	12	9			
Religion	Hindu	49	26	.012	1	1.00
	Others	7	4			
Socio economic status	lower	45	15	8.535	1	.003
	middle					
	Middle upper	11	15			
		Exposure naïve (n=56)	Repeat exposure (n=30)	t	df	Sig. (2-tailed)
Age		33.82 ± 8.32	41.90 ± 7.94	4.357	84	.000
Years of education		10.30 ± 2.13	10.20 ± 2.04	-.217	84	.828
Total HADS Depression Score		10.71 ± 2.54	10.20 ± 1.86	-.973	84	.333
Total HADS Anxiety Score		12.69 ± 2.82	10.73 ± 1.99	3.373	84	.001

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