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RESEARCH ARTICLE

EFFECTIVENESS OF STRUCTURED INTERVENTION PROGRAME ON GAMMA GLUTAMYL TRANSFERASE (GGT)AMONG CLIENTS WITH ALCOHOL DEPENDENCE SYNDROME- A PILOT STUDY.

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Abstract

The present study was aimed at assessing the effectiveness of structured intervention programme on Gamma Glutamyl Transferase (GGT) of clients with alcohol dependence syndrome admitted in a selected hospital, Ernakulam, Kerala. True experimental- pretest post test control group was the study design. The sample consisted of 20 clients with alcohol dependence syndrome, who were admitted in the de-addiction ward, and the subjects were selected by systematic random sampling method. Tool used were demographic and clinical data sheet related to alcoholism, and GGT monitoring chart. Pretest was done on the first day and structured intervention programme was scheduled with risk reward analysis, coping skill training programme, assertiveness training programme, family based intervention and psycho education for experimental group from 2nd to 12th day. Post test was conducted after 3 months of intervention, on 102nd day. Analysis done with unpaired t test, it is found that there is no significant difference in pretest scores of control and experimental group (t=0.0913,p=0.928). At the same time, there is a significant difference between post test scores of control and experimental group (t=2.588,p=0.018). Paired t test proved that there is no significant difference between pre test and post test scores in control group (t=2.126,p=0.062)., and a significant difference between pre test and post test score in experimental group(t=5.268, <0.001).The intervention programme motivated the clients with alcohol dependence syndrome to face the existing problems and to prevent relapse, and resulted a reduced GGT level.

Introduction:-

Alcohol is one of the commonest substances of abuse in most of the societies of the world. Alcoholism is seen as the world's highly prevalent public health problem and therefore, it is a matter of serious concern, not confined to any group, culture or country. The physical, psychological, social and legal harms of excessive alcohol use, represent a major public health problem (Anderson, P,et.al.,2003)

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Alcohol abuse significantly contributes to the global burden of disease and alcohol abuse has been linked to an unprecedented decline in male life expectancy(Rehn, N.,et.al.,2001).There is no unique and known cause of alcohol dependence and several factors may play a role in its development: familial and genetic factors, psychological attributes such as high anxiety, ongoing depression, unresolved conflicts within a relationship, low self esteem and social factors such as availability of alcohol, social acceptance and promotion of the use of alcohol, peer pressure and demanding life style(National Survey on Drug Use and Health Report ,2006). Stress and emotional problem can also play role in the development of alcohol abuse.

Alcohol is consumed by about 2 billion people the world over, approximately one third of them have diagnosable alcohol use disorders (Ghosh S ,2012). In India, the estimated numbers of alcohol users in 2005 were 62.5 million, with 17.4% of them (10.6 million) being dependant users (McQuade WM, 2000) and 20 30% of hospital admissions are due to alcohol related problems (Andreasson S, 2000). Alcohol related problems made up 17.6% of case load of psychiatric emergencies in a general hospital in India (Adityanjee MD, ,1989). However, physicians diagnose less than half of patients and treat even less of them(Cherpitel CJ, ,1996).The major difficulty in early diagnosis and treatment is inadequate and unreliable self report of patients due to rejection and fear of being stigmatized.

Serum Gamma Glutamyl Transferase (GGT), a liver enzyme is the most useful of the currently available tests. It is elevated in 30 percent of patients with alcohol dependence in primary care and, 50 to 100 percent of hospitalized patients with alcohol dependence. The correlation of elevated GGT levels in serum and drinking habits was also confirmed by a study which determined GGT activity in a total of 238 male subjects undergoing routine health screening and found correlated well with the drinking pattern (Rollason JG, 1972).

GGT is a glyco enzyme found in endothelial cell membranes of various organs. It appears to mediate peptide transport and glutathione metabolism. Elevated serum GGT level remains the most widely used marker of alcohol abuse. Levels typically rise after heavy alcohol intake that has continued for several weeks (Allen JP, 1994). With 2-6 weeks of abstinence, levels generally decrease to within normal limit. Serial measurements of GGT have proved valuable in monitoring the progress of therapy as well as abstinence from alcohol (Donald JB, 1977).

Therefore, interventions aimed at therapeutic efficacies are extremely valuable in prevention of relapse and decreased serum GGT levels. The individual's ability to successfully solve the problem and executing effective coping mechanism also influence the treatment outcome. Engaging the family of the alcohol dependents is definitely helpful in providing support for the patients and in helping them to remain abstinent.

Materials and Methods:-

Objective:-

To assess the effectiveness of structured intervention programme on Gamma Glutamyl Transferase (GGT) among alcohol dependents.

Research approach and Research Design:-

Quantitative, experimental with pre-test and post-test control group design.

Participants: Alcohol dependents between the age group of 30 to 60 years. A total of 20, 10 each for the experimental and control groups were selected using systematic random sampling technique from a selected hospital at Ernakulam district, Kerala.

Tool for data collection

Tool 1:- Demographic data sheet

Tool 2:-Gamma Glutamyl Transferase (GGT) monitoring chart

Procedure for data collection:-

Phase I. On the first day of data collection, pre-test was done using Demographic data Sheet, Clinical data sheet related to alcoholism, and blood collected for Gamma Glutamyl Transferase (GGT).

Phase II The experimental group was given structured intervention programme on second to 12^{th} day on alternate days. On the 2nd day, intervention programme started with an individual session of 30 minutes on risk-reward analysis. An individual session of 30minutes of coping skills training and 30 minutes of assertiveness training had given on 4th and 6^{th} day. A session on family based intervention of 30 minutes had given on 8^{th} day and family psycho-education on 10^{th} and 12^{th} day.

Phase III. Post test was conducted three months after the intervention, on 102nd day, using the same pre-test assessment scales.

Data analysis:-
The analysis was carried out using sigmaplot 12.0 (Systat software Inc, USA). A 'p' value of <0.05 was considered to be statistically significiant for the interpretation of the result. Frequency and percentage distribution was done to describe the demographic characteristics. The effectiveness of structured intervention programe was analysed by paired and unpaired t test.

Ethical consideration:-
This study was approved by Institutional Human ethics committee of Saveetha University Chennai.

Results:-

Majority of participants from both control (60%) and experimental (50%) were belonged to the age group of 41-50. 50% from control and 60% in experimental group had only primary education. All participants were manual laborers and were married. In control group,70% and in experimental group 80% were from nuclear family and 70% in control 90% in experimental group were from rural area. In control group 60% and in experimental group 70% had duration of drinking habit more than 20 years. Majority, 90% in both groups had excessive alcoholism for more than one year. 50% from control and 60% in experimental group never had a period of abstinence. All in control group and, 80% in experimental group had a family history of alcoholism and, 80% in control group 100% and in experimental group had a habit of smoking.

Comparison of pre-test and post-test scores of Gamma Glutamyl Transferase (GGT) in control and experimental group:-
In the control group the mean pre test GGT score was 108.6 and in post-test it was 100.0. The parallel values in experimental group were 107.1 in pre test and 69.6 in post test. By using unpaired t test, it is found that there is no significant difference in pretest scores of control and experimental group (t=0.0913,p=0.928). At the same time, there is a significant difference between post test scores of control and experimental group (t=2.588,p=0.018). Paired t test showed that there is no significant difference between pre test and post test scores in control group(t=2.126,p=0.062)., and a significant difference between pre test and post test score in experimental group(t=5.268, <0.001).The GGT scores of control and experimental group are presented in table 1

Table1:-GGT scores of control and experimental group

Sl no	Parameter	Group	Mean ± SE	unpaired t		Paired t	
				Con pre E x pre	Con post Ex post	Con- pre Con – post	Exp – pre Exp – post
1	GGT	Con- pre	108.6±12.286	T	T	T	T
		Con- post	100.±11.058	0.0913	2.588	2.126	5.268
		Exp-pre	107.1±10.914	p	p	p	p
		Exp-post	69.6±4.902	0.928	0.018	0.062	<0.001

Discussion:-

In this study majority of participants from both control (60%) and experimental (50%) were belonged to the age group of 41-50. The results of the study were congruent with the findings of Schuckit (2000) that heavy drinking during the third and fourth decade of life is a common phenomenon. 50% from control and 60% in experimental group had only primary education. Kadri et al.(2003) stated in their study of socio demographic profile of substance abusers attending a de-addiction centre in Ahmadabad city that most of the abusers were educated up to primary and secondary level. All participants were manual laborers and were married. These findings were similar with the findings of Benegal, Velayudhan, Jain (2000) that low education level and occupation as laborer were the factors highly associated with alcoholism. In control group, 70% and in experimental group 80% were from nuclear family and 70% in control 90% in experimental group were from rural area. Significantly higher use of alcohol has been recorded among rural and low socio economic urban sections (Ray R, 1994). All in control group and 80% in experimental group had a family history of alcoholism. This is similar with the findings of Khosla, Thankappan, Mini and Sarma (2008) that family history of alcohol was the second major predictor for current alcohol consumption.

The major finding of this study was the significant decrease of GGT value in the experimental group after the structured intervention programme ($p<0.001$).The clients verbally too reported that the relapse is decreased and is objectively proved by the clinical evidence. At the same time, control group also had a decrease in the mean GGT scores, might be the result of routine treatment. Still, a significant difference exists between both groups which is the outcome of the structured intervention programme.

Similar finding was found in a randomized controlled trial conducted to evaluate the effect of a nurse conducted intervention on excessive drinkers. Of 2338 subjects, 222 had a screening GGT of >0.9 µkat 100 were randomized to the treatment and 122 to the control group. After 2 years, in the intervention group, there was a a reduction of GGT from 1.52 to 1.21µkat[13].

Another study investigated the effect of brief motivational interviewing on Driving while impaired (DWI) recidivist with alcohol problem and is assessed by GGT. Male and female recidivists with drinking problemwere recruited, evaluated and then randomly assigned to receive 1 of 2 manualized interventions: 30 minute motivational interviewing session or information- advice. Analysis revealed significant decline in risky driving with both interventions and motivational interviewing produced significantly greater improvement at 6-month follow up in GGT level[14].

The structured intervention programme helped the subjects to analyse the risks and rewards of their behaviour, improved the coping skills and assertiveness. The family members also understood the nature of alcoholism and the importance of support system for maintaining abstinence, which too contributed the positive outcome.

Conclusion:-

The structured intervention programme including risk reward analysis, coping skill training, assertiveness training, family interaction programme and psycho education had a positive effect on decreasing GGT level of clients with alcohol dependence syndrome. The intervention programme helped the clients with alcohol dependence syndrome to acknowledge the facts, to face the reality of their problems and thus motivated them to maintain abstinence, which is a prime measure for successful recovery from alcohol dependence. Being an active and qualified member of the psychiatric multidisciplinary team, the nurses can be the best providers there interventions. Based on the findings of the study, it is concluded that structured intervention programme can significantly prevent or reduce relapse and decrease GGT level of clients with alcohol dependence syndrome.

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