

Comparative study on betel nut chewers and non-chewers in Karachi Female

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Abstract: Numerous studies have shown that long-term chewing betel nut in different form is associated with increases in serum aminotransferases in hepatocellular damage. Which leads to the increase risk of cirrhosis of liver .The habit of chewing betel nuthas been linked variety of problems albuminuria in diabetic patients, disruption of gastric mucosal barriers, aggravation of asthma, induction of pyramidal syndrome, milk alkali syndrome, induction of pyramidal syndrome, cancer of oesophagus and liver and low birth weight of new born babies of betel nut chewing mothers. It also associated with higher risk of type 2 diabetes mellitus, hypertension and total deaths and clinical ischemic heart disease in diabetic patients. It stains the teeth dark red to black and is thought to cause tooth decay, and cause serious lesions of the mouth and throat. During this study two groups of women took to find out change in blood parameters, liver function markers(bilirubin total, bilirubin direct, SGPT,GT,alkaline phosphate),total cholesterol,urea,creatinin,glucose random and fasting, haemoglobin. Results showed some fluctuation with in normal range in booth groups, e.g. in liver function test SGOT normal range for female is 31U/L and from the blood examination for SGOT (Mean \pm S.D) were significantly high in Non-betel nut chewers groups (24.7 \pm 6.40) as Compared to chewers group (17.5 \pm 5.72) were significant (p=0.010) Urea (Mean \pm S.D) were significantly high in Betel Nuts chewers groups (36.2 \pm 8.43) as compared to not chewers group (28.6 \pm 7.53) were significant (p=0.028).while the normal range of Urea is 15 to 43 mg/dl.From the results(table)it was found that Billurin(total and direct) Creatinin, Glucose fasting and Glucose random, cholesterol were with in normal range. While haemoglobin in both groups were slightly low in both groups.Heamoglobin level in chewer group was 10 mg/dl and in nonchewersgroup it was average 11.2 mg/dl.it showed little bit better condition in non-chewer group of female but not satisfactory because the normal range of haemoglobin is 12 to 16 mg/dl in female. Average systolic BP was 113 and diastolic BP was 77 mmHg in betel nut chewers group and average systolic was 119 mmHg and diastolic BP was 80 mmHg in betel nut non-chewers group of female.

Keywords: Betel nuts , Hepatocellular damage, Diabetes mellitus, hypertension , clinical ischemic heart disease, Disruption gastric mucosal barriers, mouth cancer , lekoplakia

Introduction:

Betel nuts are the fruits of the areca palm (name, areca catechu, family, Palmacea) which grows in the tropical environments. The palm is indigenous to India and South Pacific, but apparently can be grow in many other warm locations including Florida and California.[1] . It is common habit and a mean of social interaction in Asia, particularly the south Pacific Island Southeast, Asia, Bangladesh, Pakistan and India. It is estimated that 10 to 25% of the population chew betel quid. The nut is mostly used in the form of "betel quid" in which powdered betel nut is combined with tobacco, betel leaves, lime, and various flavoring such as funnel seed. The quid is placed between the cheek and gum and remains for an extended time, sometimes overnight. It stains the teeth dark red to black and is thought to cause tooth decay, and cause serious lesions of the mouth and throat. [2]

Betel nut is believed by user to be a mild stimulant, which produces an increased awareness of one's surrounding. It acts as psychoactive and addictive properties. It is the fourth most commonly, used psychoactive substance after caffeine, nicotine and alcohol. [1]. Betel nut is full agonist of acetylcholine, muscarinic receptors. Regular recreational use of betel nut is responsible for a number of adverse health consequences for early death. The most prominent danger associated with betel nut chewing is precancerous lesions lead to fibrosis, which is seen in 50% chronic users [2]. The major finding involves a loss of elasticity of the tissue lining of the mouth which causes stiffness can become so sever as to interfere with eating. Associated problems are a burning sensation in mouth, decreased sense of taste and dryness of mouth lining [3] . The use of betel nut substance can produce intense use[4],spitting the juice on the street can increase the spread of diseases such as tuberculosis[5]. In spite of lekoplakia, betel nut chewing has been linked variety of problems albuminuria in diabetic

patients[6],disruption of gastric mucosal barriers [7], aggravation of asthma [8] induction of pyramidal syndrome [9],milk alkali syndrome [10], induction of dysplasia [11]), cancer of the esophagus [12], and liver and low birth weight of babies born to mother chewing betel nut [13].

Material and methods:

Chemicals:

All kits for the estimation of ASAT,ALAT,ALP and Urea were purchased fromEcoline,Germany.Creatinine,bilirubin total and direct assay kit were purchased from Merck(private) Limited. Serum total cholesterol was estimated using kit (Merck, Germany).Glucose estimation was done by Glycaemia kit.

Blood samples:

5cc intravenous blood samples were collected from informed consents to test all above blood parameters in test tubes. After centrifugation serum were used for biochemical analysis as a sample. For glucose testing anticoagulant test tubes were used to get plasma from whole blood.

Experimental design:

Females belonged to Karachi, were divided in to two groups on the basis of chewing betel nut and non-chewing betel nut of average age 30 t0 38 years. Blood samples were taken for the estimation of blood parameters.

Biochemical Analysis:

Blood samples were collected in centrifugation test tubes and centrifugation was done at

Statistical analysis:

Statistical analyses were performed by using spss.The results were expressed as mean \pm S.D. value less than 0.05 was considered significant.

In more recent population based studies in Taiwan, betel nut chewing is also associated with higher risk of type 2 diabetes mellitus [14], hypertension [15],and total cerebrovascular deathsand sub clinical ischemic heart disease in diabetic patients [16],

Results:

During the research study blood examination was done to find out change in blood parameters in betel nut chewers and non-chewers groups of females. Results showed some fluctuation with in normal range in booth groups, e.g. in liver function test SGOT normal range for female is 31U/L and from the blood examination for SGOT (Mean \pm S.D) were significantly high in Non-betel nut chewers groups (24.7 ± 6.40) as Compared to chewers group (17.5 ± 5.72) were significant ($p=0.010$) Urea (Mean \pm S.D) were significantly high in Betel Nuts chewers groups (36.2 ± 8.43) as compared to not chewers group (28.6 ± 7.53) were significant ($p=0.028$).while the normal range of Urea is 15 t0 43 mg/dl.From the table it was found that Billurin(total and direct)Creatinin, Glucose fasting and Glucose random, cholesterol were with in normal range. While haemoglobin in both groups were slightly low in both groups.Heamoglobin level in chewer group was 10 mg/dl and in nonchewersgroup it was average 11.2 mg/dl.it showed little bit better condition in non-chewer group of female but not satisfactory because the normal range of haemoglobin is 12 t0 16 mg/dl in female. Average systolic BP was 113 and diastolic BP was 77 mmHg in betel nut chewers group and average systolic was 119 mmHg and diastolic BP was 80 mmHg in betel nut non-chewers group of female.

Table: Comparison of Biophysical and Biochemical parameters in

Betel Nuts Chewers and not Chewers on baseline amongst **Female**

	Female (n=25) on Baseline				
	Betel Nuts Chewers (n=15)		Betel Nuts Not Chewers (n=10)		P-value
	Mean	S.D	Mean	S.D	
Biophysical parameters					
Age in years	30.2	15.46	38.4	15.46	0.213
Systolic BP (mmHg)	113	21.0	119	11.7	0.361
Diastolic BP (mmHg)	77	11.4	80	11.8	0.545
Biochemical parameters					
Bilirubin Total (mg/dl)	0.81	0.16	0.70	0.17	0.106
Bilirubin Direct (mg/dl)	0.23	0.13	0.25	0.10	0.649
SGPT (U/L)	17.5	5.72	24.7	6.40	0.010
GT (U/L)	20.7	9.51	16.4	2.41	0.111
Alk. Phosphate (U/L)	205	62.6	202	77.2	0.919
Cholesterol (mg/dl)	171	21.8	176	29.0	0.645
Urea	36.2	8.43	28.6	7.53	0.028
Creatinine	0.89	0.20	0.84	0.08	0.372
Glucose (FBS)	94	21.8	97	11.6	0.609
Glucose (RBS)	118	45.5	143	69.7	0.336
Hemoglobin (g/dl)	10.0	1.70	11.2	1.24	0.069
RBC	4.67	0.25	4.73	0.41	0.666
WBC	5387	979	5340	804	0.898

In Female on baseline, Betel Nuts not chewers groups (Mean ± S.D) of SGPT (17.5 ± 5.72) were significantly less (p=0.010) and, Urea (36.2 ± 8.43) were high (p=0.028) as compared to not chewers group respectively (24.7 ± 6.40), (28.6 ± 7.53)

Discussion:

Betel nut consumption can be viewed as a public health hazards in parts of the world. Betel nut consumption can be viewed as a public health hazards in parts of the world, the habit of spitting the juice on the street can increase the spread of diseases such as tuberculosis [5]. In spite of leukoplakia, betelnut chewing has been linked variety of problems albuminuria in diabetic patients [6], disruption of gastric mucosal barriers [7], aggravation of asthma [18], induction of pyramidal syndrome [9], milk alkali syndrome [10], induction of dysplasia [11], cancer of the oesophagus [12], and liver and low birth weight of babies born to mother chewing betel nut [9]. In more recent population based studies in Taiwan, betel nut chewing is also associated with higher risk of type 2 diabetes mellitus [14], hypertension [15], and total cerebrovascular deaths [16], and sub clinical ischemic heart disease in diabetic patients [17]. In our study results indicated

slight change with in normal range in both groups chewers and non-chewers female groups, impact of chewing on health was not sudden it took time to reflect its hazardous effects on health. That is why people are not paying attention to give up this bad habit of chewing betel nut and getting involved in continuing till its bad effects control the body metabolism. So that is why it has been part of Asian culture and tradition. Its cheap price and easy availability are spreading it very fastly. Females due to different types of ignorance and domestic problems are taking betel nut to get rid from their problems. Therefore our government should take some precautionary steps to save society from all types of hazardous substances which are licking health like termite.

Conclusion:

The aim of study was to find out the overall health condition in both groups chewers and non-chewers groups

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