The relationship between Sakau (kava) and gastritis

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Introduction

During 1992-93, patients were diagnosed with sakau-induced gastritis although there was no firm evidence that there is a causative association. Such patients initially presented to the emergency room with severe chest pain, which was indistinguishable from other life threatening diseases. As a routine work-up, blood chemistries, chest X-ray and electrocardiography were performed to rule out these diseases. The results, as well as the physical examination, turned out to be within normal range. The symptoms remained unexplained. Information from the history were insignificance, except for the common fact that the patients were chronic sakau drinkers and the last sakau consumption was within 24 hours prior to experiencing the chest pain.

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Sakau (also known as kava, ava, yaqona or piper methysticum) is a widely consumed intoxicating beverage in Pohnpei, usually drunk during social or ceremonial occasions[1] It is viewed as a "healing agent and ceremonial drug".[1] Recently, Sakau has gained popularity among islanders,[1] especially in Pohnpei where there are many Sakau bars. The root of this plant is used to create the intoxicating sakau drink. The root is pounded on a flat rock, dampened with water then strained through the fibres of hibiscus bark into a coconut shell. It is then ready to drink[5]. Sakau drink "... looks and tastes like muddy water, and sometimes has a very rough smell".[1]

Gastritis, an inflammation of the stomach, is often associated with a history of aspirin, non-steroidal anti-inflammatory drugs or excessive alcohol use. Signs and symptoms include heartburn, persistent loss of appetite, nausea and vomiting.[6] During year 1992-93, there were seventy-two (72) gastritis hospital admissions.[7]

A review of the literature revealed the multiple side effects for sakau chronic drinkers: "low body weight, liver and kidney problems, blood abnormalities, possible pulmonary hypertension, weakened eyesight, increased skin lesions, constipation, possible intestinal obstructions, bloodshot and irritated eyes, body rash, laziness, scaling/cracked skin, bad breath, shortness of breath, malnutrition, numbness and dizziness".[1] In Vanuatu three deaths were reported caused by excessive Kava consumption.[8] The relationship between sakau and gastritis had not been studied; therefore, this research attempted to determine if sakau was associated with gastritis.

This study was a hospital-based matched case-control study.[9] Initially, the cases were 56 patients admitted during 1992 with the diagnosis of gastritis. Case definition was presenting complaint of epigastric pain, with or without nausea and vomiting. Out of 56, only 35 patients were selected as cases. The remainder either did not meet the criteria or their charts were not located. For the year 1993, there were 50 admissions with gastritis, out of which 36 were selected, resulting in a total of 72 cases (through1992-93). The controls were randomly selected among those admitted between year 1992-93 with conditions other than gastritis. For every case during a given year, two controls were selected from the same year. Such controls were matched to the cases with regards to gender, race, and age (± 3 years). The criteria for selection of control subjects required that each had no history of gastritis, gastric cancer or peptic ulcer disease.

Variables of interest included gender, age, and sakau intake habits (i.e. number of times per week). To examine the sakau and gastritis association, the risk factors for gastritis (i.e. asprin,

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Non-Steroidal Anti-Inflammatory Drugs, and alcohol) were considered. This was controlled for during data analysis while determining whether sakau was an independent and/or aggravating factor.

Data was collected directly from patients' charts using a record review form. This form was reviewed by at least two PBMOTP staff to assure adequacy of information needed to be collected. The study was conducted with the cooperation of the Pohnpei State Hospital Records staff.

A main source of bias in the study was incomplete or unavailable information in the charts. For instance, one may have been exposed to a gastritis predisposing factor (i.e. asprin) and yet was not documented in the chart. Undocumented predisposing factors could lead to the following: 1) increased frequency of gastritis among sakau exposed group when they would already had a risk factor, or 2) increased frequency of gastritis among those unexposed to sakau; which would mask the probability of association between sakau consumption and gastritis.

All data collected was computerised using the Epi-Info program. The data was then tabulated and organized in a two by two table format according to each variable of interest, including gender, age and so forth. Initially, a comparison was made between: 1) overall frequency of exposure to sakau among cases and controls before controlling for the other gastritis risk factors; and, 2) overall frequency of exposure after controlling for other gastritis risk factors. Therefore, every variable was analyzed after excluding all subjects (cases and controls) who had other gastritis predisposing factors, leaving only the sakau exposed verses non-exposed among the two study groups. Data was analysed to compare between those who took sakau plus each one of the gastritis known predisposing factors (asprin, NSAID and alcohol) as opposed to those who only consumed sakau. Such comparisons indicated whether sakau acted synergistically with any one of these gastritis predisposing factors.

Table 1. Association of sakau use and gastritis among various age goups and gender, showing Odds Ratios (ORr) and P-values.

	McNemars Odds Ratio	P values
Age groups in years:		
15-24	4.25	0.01
25-34	3.38	0.0001
35-44	1.63	0.043
45-54	2.88	0.006
55-64	2.83	0.029
65-74	1.75	*Not significant*
75-84	3.33	0.008
Gender:		
Females	2.59	0.002
Males	2.52	0.008

Table 2. Association of sakau use and gastritis with and without gastritis risk factors, showing Odds Ratios (OR) and P-values

Gastritis risk factors	McNemars Odds Ratio	P-value
Asprin		
Sakau Only	2.58	0.001
Sakau plus Asprin	2.0	Not significant
NSAID		
Sakau Only	2.73	0.001
Sakau plus NSAID	1.0	Not significant
Alcohol		
Sakau Only	2.53	0.0001
Sakau plus Alcohol	2.63	0.0005

For each variable of interest, a matching odds ratio (McNemar's test)[13] and P-value was calculated directly from the 2 x 2 table.

Result and discussion

The odds ratio for overall exposure to sakau before controlling for other independent variables associated with gastritis, was 2.56 (p = 0.02) while those who consumed sakau alone had an odds ratio of 4.7 (p = 0.001). (See Table 1)

As indicated from the results, the study found that all variables of interest were significant with the exception of age-group 65-74 years, sakau plus asprin, and sakau plus NSAID users. Interestingly, the odds ratio for the overall exposure to sakau alone, was much higher, 4.7 (P-value 0.025), as opposed to 2.56 (P-value 0.05), overall exposure before removal of the gastritis predisposing factors. An explanation could be that sakau use alone has a much greater influence on gastritis, compared to those other factors. The fact that sakau intake along with aspirin or NSAID were insignificant was surprising. Because there were only a few individuals found in the study using these drugs together with sakau, the relationships were not significant.

Of the age-groups, 15-24 years of age were found to have the highest risk, with an odds ratio of 4.25 while age 65-74 had the lowest odds ratio (1.75). The risk was found to be about the same between females and males, 2.59 and 2.52 respectively. Sakau in combination with alcohol seemed to be a stronger indicator of gastritis than sakau consumption alone. Repeatedly, sakau use alone (as shown on Table 2) was associated with a much higher risk than if combined with any of the other gastritis risk factors.

Conclusion

The study concluded that sakau consumption is associated with gastritis. It also has synergic effects especially when used with alcohol. Individuals between age 15 to 24 years were found to have an increased risk of developing gastritis than others. The results need confirmation with studies using improved design.

For a better understanding of the role of sakau in causation of gastritis, it is recommended that future studies consider a longitudinal design with a representative sample from the general population. Nevertheless, it is evident from this study that an association exists between sakau and gastritis.

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Aia ke ola I ka hana.

Life is in labor.

Labor produces what is needed. *ʻŌlelo Noʻeau #57*