Prevalence of Oral Lesions in Pan Vendor

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ABSTRACT

Background: Being a portal of entry to various smoking and smokeless tobacco products, oral cavity is prone to deleterious effects. Present study consist of epidemiological survey to elucidate oral lesions in pan vendors.

Aims and objectives: To detect oral lesions in pan vendors and compare it with controls. To detect habit pattern and prevalence of OSMF and other lesions in pan vendors as compared to controls. To identify, recognize and evaluate the possible etiology for OSMF, encompassing various chewing and smoking habits.

Materials and methods: Study population consist of 170 pan vendors with age ranging from 15 to 55 years and equal number of sex matched controls selected randomly.

Results: Prevalence of oral lesions in pan vendors is statistically significantly higher as compared to controls. The habit of arecanut chewing in various forms was present in all cases. The habit of smoking and smokeless tobacco products was present in all cases.

Conclusion: Pan vendors are at higher risk for oral lesions than controls. There is increase in relative risk with increase in duration and frequency of habit.

Keywords: Prevalence, OSMF, Leukoplakia, Tobacco-lime chewers lesion.

INTRODUCTION

Oral cavity is portal of entry to all tension relieving remedies like smoking and smokeless tobacco products, alcohol, chewing habits such as pan, kharra, gutkha, betelnut chewing, etc. Subjected to misuse, insult and illtreated by such habits, it is not surprising to find gross evidence of pathological changes in oral mucosa.1 Present study consists of an epidemiological survey to elucidate oral lesions in pan vendors. Present study consists of identification and recognition of possible etiology for OSMF, leukoplakia and tobacco-lime chewers lesion. More emphasis was given to evaluate possible role of arecanut in causation of OSMF.

MATERIALS AND METHODS

Prevalence study to elucidate oral lesions in pan vendors was conducted in one city of vidarbha region of Maharashtra state (Shegaon. Dist: Buldhana). In this shop to shop survey, 170 pan vendors with age ranging 15 to 55 years and equal number of sex match controls were examined on random basis.

Diagnostic criteria: The oral lesions namely OSMF, leukoplakia, erythroplakia and tobacco-lime chewers lesions were diagnosed solely on clinical grounds.

Before examination, the individuals were questioned about chewing and smoking habits.

OBSERVATION AND RESULTS

Table 1 shows age distribution of pan vendors and controls. Statistically highly significant number of pan vendors were found under 25 to 34 years age group when compared to controls.

Table 2 shows various smoking and smokeless tobacco habits in pan vendors and control. Pan vendors and controls differed in terms of smoking habit, various tobacco and arecanut chewing habit. Results showed that 99.4% (169/170) pan vendors practiced tobacco and arecanut chewing habit in one form or other in contrast to 74.11% controls (126/170). Thus, the relative risk was 59.02 which was statistically significant.

Table 3 shows duration of habit in pan vendors and controls. On comparison, duration of habit was found to be statistically significantly higher (p < 0.05) in pan vendors as compared to controls.

Table 4 shows frequency of habits per day. On comparison it was found to be statistically significantly higher in pan vendors as compared to controls.

Table 1: Age group

| Age   | Pan vendors | Controls |
|-------|-------------|----------|
| 0-14  | –           | –        |
| 15-24 | 09 (5.29%)  | 19 (11.18%) |
| 25-34 | 129 (75.88%)| 97 (51.18%) |
| 35-44 | 28 (16.47%) | 49 (28.82%) |
| 45-54 | 04 (2.35%)  | 14 (8.24%)  |
| 55 and above | – | 01 (0.59%) |

Chi-square test = 23.83 ** Highly significant at 1% (p < 0.01)
Mean age for pan vendors = 30.3 years
Mean age for controls = 31.83 years
lesions which include 4 OSMF, 2 leukoplakia, 6 tobacco-lime chewers lesion and one erythroplakia. 12 controls exhibited

Table 5 shows lesions that are observed in pan vendors and controls. A total of 45 lesions were observed in pan vendors which includes 15 OSMF, 9 leukoplakia, 20 tobacco-lime chewers lesion and one erythroplakia. 12 controls exhibited

Table 2: Habits

| Habits            | Pan vendors | Controls |
|-------------------|-------------|----------|
| Pan-T             | 37 (21.76%) | 20 (11.76%) |
| Pan-NT            | 09 (5.29%)  | 11 (6.47%) |
| Kharra-T          | 58 (34.12%) | 25 (14.7%) |
| Kharra-NT         | 16 (9.41%)  | 04 (2.35%) |
| Gutkha            | 24 (14.12%) | 37 (15.88%) |
| Arecanut          | 23 (13.53%) | 26 (15.29%) |
| Tobacco and lime  | 53 (31.18%) | 26 (15.29%) |
| Pan and gutkha    | 24 (14.12%) | 24 (15.29%) |
| Kharra and gutkha | 24 (14.12%) | 24 (15.29%) |
| Bidi smoking      | 06 (6.87%)  | 07 (6.82%) |
| Cigarette smoking | 09 (5.29%)  | 07 (4.12%) |
| Smoking and chewing | 24 (14.12%) | 12 (7.06%) |
| No habit          | 01 (0.59%)  | 44 (25.88%) |

Table 3: Duration of habit

| Duration | Pan vendors | Controls |
|----------|-------------|----------|
| 1-5 years| 45 (26.63%) | 52 (38.24%) |
| 6-10 years| 78 (45.88%) | 42 (30.88%) |
| 10-20 years| 40 (23.53%) | 35 (25.74%) |
| >20 years| 06 (3.53%)  | 07 (5.15%) |

Chi-square test = 10.69 *Significant at 5% (p < 0.005)

Table 4: Frequency per day

| Frequency/day | Pan vendors | Controls |
|--------------|-------------|----------|
| 5            | 93 (65.03%) | 91 (68.42%) |
| 6-10         | 51 (30.18%) | 24 (18.05%) |
| >10          | 25 (14.79%) | 18 (13.53%) |

Chi-square test = 13.02 *Significant at 5% (p < 0.005)

Table 5: Lesion significant

| Lesion          | Pan vendors | Controls | Odd ratio | CI at 95% | p-values |
|-----------------|-------------|----------|-----------|-----------|----------|
| OSMF            | 15          | 4        | 4.74      | 1.53-14.64 | <0.05    |
| Leukoplakia     | 09          | 2        | 5.688     | 1.21-26.8 | <0.05    |
| TL lesion       | 20          | 6        | 4.213     | 1.3-13.62 | <0.05    |
| Erythroplakia   | 01          | –        | –         | –         | –        |
| Lichen planus   | –           | –        | –         | –         | –        |
| Carcinoma       | –           | –        | –         | –         | –        |
| *No lesion      | 125         | 158      | 1         | –         | –        |

*Reference category

Table 6: Association of OSMF with various arecanut chewing habits

| Habits             | Pan vendors | Control | Odd ratio | CI at 95% | p-value |
|--------------------|-------------|---------|-----------|-----------|---------|
| Pan                | 2           | 1       | 112       | 4.99-2511.36 | <0.05   |
| Kharra             | 6           | 2       | 168       | 2.45-11525.9 | <0.05   |
| Gutkha             | 10          | 2       | 280       | 4.59-17080.1 | <0.05   |
| Arecanut           | 2           | 1       | 112       | 4.99-2511.36 | <0.05   |
| Kharra and gutkha  | 2           | 1       | 112       | 4.99-2511.36 | <0.05   |
| Pan and gutkha     | 2           | 1       | 112       | 4.99-2511.36 | <0.05   |
| Tobacco and lime   | 1           | –       | –         | –         | –       |
| *No habit          | 1           | 56      | 1         | –         | –       |

*Reference category

In the present study, prevalence of OSMF in pan vendors is 8.82% as compared to controls where the prevalence is 2.35%.

In causation of OSMF, highest relative risk among various arecanut chewing habits was for ‘gutkha’ category which was 280 and was found to be highly significant. High relative risk of 168 was also reported with kharra chewing. Relative risk for pan, kharra and gutkha, pan and gutkha and arecanut was 112 each which was also found to be statistically significant (p < 0.05).

Similar findings were also demonstrated for leukoplakia and tobacco-lime chewers lesion. (Tables 9 and 12). Thus, there is increase in relative risk for OSMF, leukoplakia and tobacco lime chewers lesion with increase in duration and frequency of habit.

DISCUSSION

In the present study, prevalence of OSMF in pan vendors is 8.82% as compared to controls where the prevalence is 2.35%.

Various epidemiological studies on prevalence of OSMF have been carried out by various investigators. Dockrat and Shear (1969)2 examined 1000 Indians in South Africa and found the prevalence of 0.5%. In Durban, Seedat et al3 found a prevalence of 3.4%. Varghese et al2 found prevalence in cashew workers to be 7.85%.
In the present study the prevalence of OSMF in pan vendors is very high. This high prevalence should have some correlation with their occupation as they are in constant touch with various arecanut and tobacco products and may pursue various habit more frequently and more regularly than general population.

Of particular concern is the fact that in the present study the predominant number of OSMF cases were in 2nd and 3rd decade (79%), a finding similar to that described by Sinor et al (1990), Maher et al (1994), Pay Master (1956), Pindborg et al (1966) and Wahi PN et al (1966).

Considering the habit, in the present study the relative risk in pan vendors was 59.02 as compared to controls which was statistically highly significant.

Present study showed strong evidence that those who chewed arecanut in some form or other had a substantially higher risk of OSMF than person who did not use areca product. It showed higher relative risk for gutkha (280), kharra (168), pan (112), kharra and gutkha (112), pan and gutkha (112) and arecanut (112) and it is possible to conclude that association of arecanut chewing and disease appears strong and specific. These findings correlate with findings of Sinor P et al 1990, Maher et al 1994, Gupta PC et al 1980.

In the present study, it is remarkable to note that those who chewed arecanut with tobacco showed higher relative risk as compared to those who chewed arecanut without tobacco. A probable reason may be that tobacco contains nicotin. Thus it is likely that individuals who chewed arecanut with tobacco, chewed it more frequently, for longer duration and more regularly to satisfy their urge for nicotin.

When the frequency and duration of habit were compared, both were found to be statistically significantly higher in pan vendors as compared to controls.

When the occurrence of lesion is considered, pan vendors were found to be at higher risk than controls.

There is a strong positive correlation between incidence of leukoplakia and occurrence of OSMF. In the present study leukoplakia was found in 15.79% of 19 OSMF cases in contrast to 2.49% of 321 person without OSMF. This is in accordance with the findings of Pindborg et al (1968), who found a higher prevalence of leukoplakia in OSMF.

With regards to other oral lesions, the present study noted prevalence of leukoplakia to be 5.29% in pan vendors as compared to 1.17% in controls. These findings were in accordance with findings of Gupta PC et al (1980) (prevalence-3.85%), Wahi PN et al (5.16%) and Mehta FS (6.2%).

In the present study, the prevalence of tobacco-lime chewers lesion was 11.76% in pan vendors as compared to 3.53% in controls. This findings were in accordance with findings of Axell 1976 (8.04%). The present study thus revealed that pan vendors are at high risks for occurrence of leukoplakia and tobacco-lime chewers lesion as compared to controls.

Tobacco-lime chewers lesion was more prevalent as compared to leukoplakia. This finding was consistent with observation of Mehta, FS et al who found tobacco-lime chewers lesion to be much more common than leukoplakia in Maharashtra.

The habit of tobacco chewing and smoking in various forms was present in all cases of leukoplakia and tobacco-lime chewers. The magnitude of relative risk of leukoplakia and tobacco chewing lesion combined with high degree of

| Table 7: Relation between duration of habit and OSMF |
|---------------------------------|--------|--------|--------|
| Duration                        | Pan vendors | Controls | Odd ratio |
| 1-5 years*                      | 6      | 2      | 1.00    |
| 6-10 years                      | 4      | 1      | 1.33    |
| 11-20 years                     | 5      | 1      | 1.71    |

*Reference category

| Table 8: Relation between duration of habit and leukoplakia |
|---------------------------------|--------|--------|--------|
| Duration                        | Pan vendors | Controls | Odd ratio |
| 1-5 years*                      | 1      | –      | –       |
| 6-10 years                      | 5      | 1      | 1.00    |
| 11-20 years                     | 10     | 2      | 1.67    |

*Reference category

| Table 9: Relation between duration of habit and tobacco-lime chewers lesion |
|---------------------------------|--------|--------|--------|
| Duration                        | Pan vendors | Controls | Odd ratio |
| 1-5 years*                      | 2      | 1      | 1.00    |
| 6-10 years                      | 8      | 3      | 1.33    |
| 11-20 years                     | 10     | 2      | 2.50    |

*Reference category

| Table 10: Relation between frequency of habit and OSMF |
|---------------------------------|--------|--------|--------|
| Frequency/day                   | Pan vendors | Controls | Odd ratio |
| ≤ 5/day*                        | 3      | 1      | 1.00    |
| 6-10 day                        | 7      | 2      | 1.17    |
| >10/day                         | 5      | 1      | 1.67    |

*Reference category

| Table 11: Relation between frequency of habit and leukoplakia |
|---------------------------------|--------|--------|--------|
| Frequency/day                   | Pan vendors | Controls | Odd ratio |
| ≤ 5/day*                        | 3      | –      | –       |
| 6-10 day                        | 4      | 1      | 1       |
| >10/day                         | 2      | 1      | 2       |

*Reference category

| Table 12: Relation between frequency of habit and TL lesion |
|---------------------------------|--------|--------|--------|
| Frequency/day                   | Pan vendors | Controls | Odd ratio |
| ≤ 5/day*                        | 05     | 2      | 1.00    |
| 6-10 day                        | 10     | 3      | 1.33    |
| >10/day                         | 05     | 1      | 2.00    |

*Reference category
correspondence between site of lesion and reported site of placement leaves little question about the etiologic role of smoking and smokeless tobacco in both the lesions.

The present study also reported an increase in relative risk with increase in duration and frequency of habit in relation to leukoplakia and tobacco-lime chewers lesion. This findings concurred with the observation of Wahi et al 1970 and Gupta et al 1980.

CONCLUSION
Pan venders were at statistically significant risk for occurrence of OSMF, leukoplakia and tobacco-lime chewers lesion as compared to controls. This might be in some way related to occupation and needs further evaluation to arrive at any conclusion.

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