

Tobacco Toxicity in Tobacco Chewers

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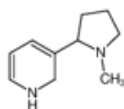
Abstract

Nicotine is highly addictive plant derived alkaloid and the most important species in human use today is *Nicotiana tabacum*. There are direct health effects of chronic nicotine exposure. Even in low doses, nicotine causes vasoconstriction and other cardiovascular effects related to catecholamine release and promote angiogenesis, neuroteratogenicity, and possibly some cancers¹. Periodontal disease and dental cavities and have up to 48 times the risk of oropharyngeal cancers compared with people who do not use tobacco products². Low doses exposure produces fine tremor, cutaneous vasoconstriction, increased GI motility, and increase in heart rate, respiratory rate and blood pressure³. Low dose nicotine also increases mental alertness and produces euphoria and desired psychoactive effects³. Metabolism is via the hepatic cytochrome oxidase system. The half life of nicotine in the body is 1 to 4 hours and decreases with repeated nicotine exposure⁴.

Key words: Vasoconstriction, periodontal disease, leucoplakia, psychoactive effects, myocardial ischemia, macular degeneration, impotence, atrial fibrillation, cancers.

Introduction

Nicotine, C₁₀H₁₄N₂⁵ MW = 162 daltons



It is a colorless, volatile, bitter, hygroscopic liquid alkaloid that turns brown and resinous on exposure to air.

Action of Nicotine: It acts on the autonomic ganglia which are stimulated initially, but are depressed and blocked at later stage. It also acts on the somatic neuromuscular junction, and afferent fibers from sensory receptors⁶.

Materials and Method

On Examination of 126 Persons in MAEER'S MIMSR Medical College & YCR Hospital who is chewing tobacco since 5 years.

1) These persons are mostly attenders, sweepers, technicians, and clerks, extra.

2) All are males.

3) They used to mix lime and tobacco or only tobacco and rub on the palm of one hand and place it between lower lip inner aspect of mouth and right or left

lower jaw gums. They place it for 10 to 30 minutes, and allow it absorb through the mucous membrane.

4) Immediately they will get euphoria, pleasuring mind, and false sense of wellbeing.

5) They take it when they are at leisure.

6) After and during chewing tobacco they prefer rest.

7) Above 85% are well nourished and in active sex, rest are not in active sex and not take much food.

8) All are living in Endemic area of Tobacco chewing. All are hailed from village areas of Marathwada region of Latur District-rural where natives chewing tobacco products habitually.

On examination Findings:

Pulse: Normal for all; for those who chew tobacco for 10 15 years vessel wall is thick, sclerotic changes like fibrosis of vessel wall is found.

B.P.: Mild increase immediately after chewing. Lower for those chew tobacco for over 15 years.

Liver and spleen are normal.

Respiratory rate is 18 to 22/minute.

Mentally alert, listen to commands.

Always restrains extra activities, extra work.

Increase in rest taking behavior.

Findings

- 1) Compulsion to chew tobacco for further time.
- 2) Addiction forming for mental well being.
- 3) Abstinence due to knowing of its harmful effects. But he again takes it for mental pleasure.
- 4) He takes it thinking that he is doing adult type of thing for self prestige as he moves in lower job works and others to speak of his health.
- 5) For hunger it is used as alternative to the food.
- 6) It works as appetite suppressant.
- 7) In persons of 5 to 10 years of chewing history show
 - a) Reduced visual acuity. b) Reduced field of vision. [Macular fovea reflex is absent, indicating macular involvement of macular region of retina – observed in village rural people coming to Ophthalmology OPD]
- 8) Pupillary reaction is not brisk.
- 9) Tobacco amblyopia – in persons of history above 10 years. Reduction of- vision of retinal or macular/ CNS origin.
- 10) Pulse is – Normal or Reduced in rate.
- 11) Memory loss: To the extent of learning remembering of educational type.
- 12) Develops selfishness behaviors, of his very near personal benefit/ pleasure type.
- 13) Develops narrow mindedness. Have selfish mind. Immediate benefits type though he knows that this may be damaging.
- 14) He sticks to the local of his known rules/norms/ customary things. (taking tea, tiffin during examination times).
- 15) Monetary/Economic Affairs:
 - i) economically selfish, to the temporary immediate comports. ii) No long term savings or investments on lands or plots, etc for longer periods of decades. iii) Selfish to his own sexual affairs and acts. iv) 90% of all these taken alcohol once in a week to have sexual pleasure.
- 16) For sexual purpose he is gradually increasing the dose of Alcohol. Previous 30ml to have sex. Now to take 90ml to have sex. It shows there gradual

decrease of Libido-male Impotence

- 17) Mouth: 1. Oral mucous membrane is light violet colour like cyanosed mucous membrane. Normally it is pinkish to red in colour.
2. **Alternate cyanosed, pale whitish areas are found.**
3. **Micro ulcers (about 0.1mm) in the oral cavity are found in 96 persons – 76%;**
4. **Macro-ulcers -20.63%. (26)**
5. **Pre-leukoplakia pale areas (mid way between normal and leukoplakia found in -8.7% (11)**
6. **Leukoplakia appeared and reversed on stoppage of tobacco chewing and taking adequate food -2.38% (3)**
7. **Brownish staining of teeth is seen in -97.61% (123); Brownish staining of Oral mucous membrane in 95.23% (120)**
8. **Brownish staining of gums is seen in -97.61% (123)**

SUGGESTIONS: Tobacco Control Legislation⁷ to be implemented.

Conclusions

- 1) These people are at the risk of forthcoming development of a) Endarteritis obliterans. b) Alzheimer's like disease with memory loss. c) Visual field defects. c) Leucoplakia (precancerous condition). d) Cardiac disorders like angina pectoris, myocardial ischemia, and cardiac irregularities, atrial fibrillation. E) Early appearance of Peptic ulcer and are more likely to fail antacid and H₂-blocker therapy for peptic ulcer disease⁸. F) Increased risk of osteoporosis, senile cataracts, and macular degeneration; and results in wrinkling of the skin, gallstones and male impotence⁹. G) High blood pressure.
- 2) Abstinence is the primary method of therapy.
- 3) These people are of lower socio-economic group.
- 4) The natives of their villages are in the habit of tobacco chewing. So they are ignoring the risks of tobacco chewing.
- 5) They unable to afford the Tobacco replacing/ abstinence therapy.
- 6) They are not approaching the Doctor because it

hampers their duty, loss of money.

7) Unable to afford the Tobacco replacement therapy.

8) They are at the risk of developing **CANCERS**: Cancers of lips, oral cavity, pharynx, esophagus, pancreas, larynx, lung, kidney, urinary bladder, other urinary organs¹⁰.

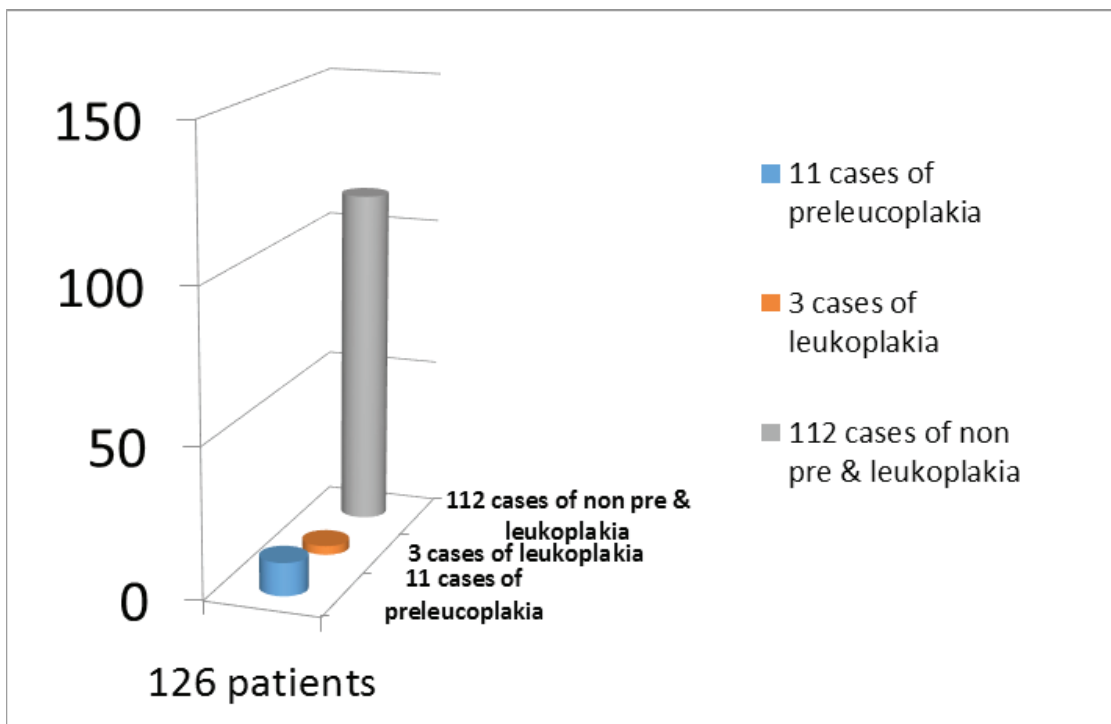


Fig.1. Incidence of Leukoplakia and pre-leukoplakia.

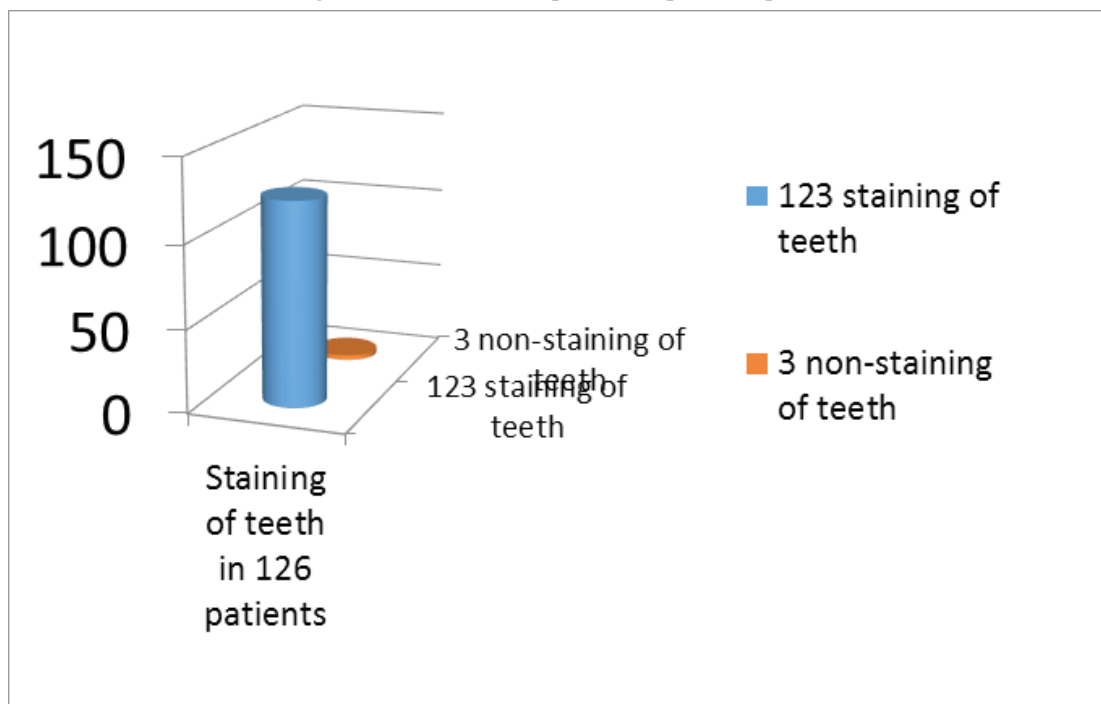


Fig. 2. Incidence of Teeth staining.

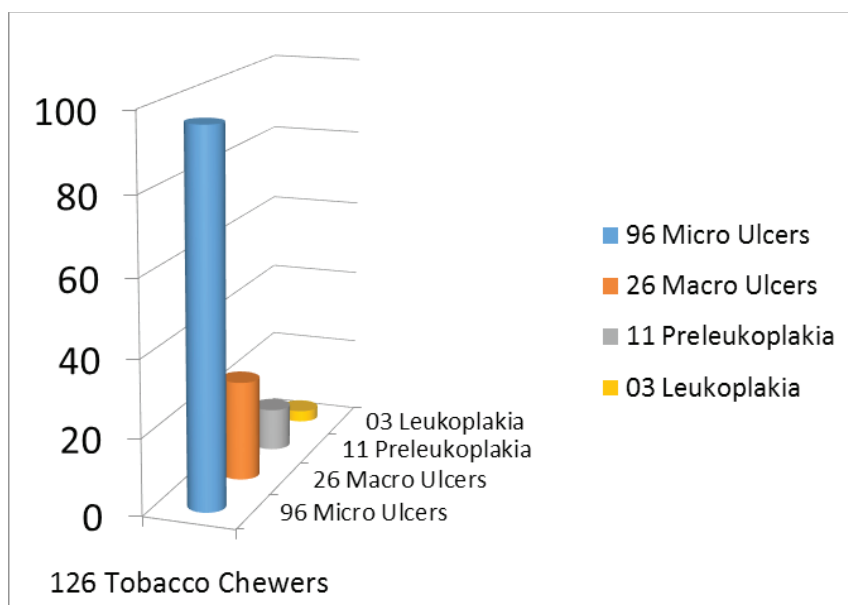


Fig. 3. Incidence of ulcers, pre-leukoplakia and leukoplakia.

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Declaration: I, Dr. Prof. V. Chandrasekhar, declare that the work done is solely belongs to me alone. This is not published in any National /International Journal.

Ethical Clearance: Taken from ETHICS COMMITTEE of Maharashtra Institute of Medical Sciences and Research, Latur, India

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