Risk factors associated with esophageal cancer in North of Iran

To the Editor

I have read the recently published paper of Moradi et al[1] and it shows many significant associations with esophageal cancer.[1] Nevertheless, their results did not detract them from calling it a "dilemma," as to reflect dissatisfaction and need for further studies. It is interesting to find that only 2, both from within the esophageal cancer belt (ECB), out of 183 representative meteorological stations from all over the world conformed with all the following 4 climatological characteristics: Extreme dryness (precipitation <125 mm/year), very cold winter months (mean monthly temperature <0ºC for December, January and February), wide difference between January and July mean temperatures (>30ºC), and a mean temperature in July of >25ºC.[2] They are Kazalinsk, Kazan of former USSR and Sufu (Kashgar), China.[2] The effect of this unique climate within the ECB deserves careful evaluation on studying esophageal squamous cell carcinoma (ESCC) within the ECB. The ESCC is also unique in having the widest geographical variation in incidence than any other cancer.[3] The following proposal attempts at linking these 2 unique features of the ECB, the climate and the high incidence of ESCC. The inspired air of the very cold and extremely dry winter months exerts a major burden on the mucosa of the nasal passages whose function is to humidify and warm inspired air as well as trapping particulate matter. Humidification embraces the cooling effect of evaporation of water from the nasal mucosa. The extreme dryness of inspired air augments evaporation and thus excessive coldness of the mucosa develops. If prolonged excessive cold exposure of the skin can cause frostbite and skin damage, the nasal mucosa is also likely to sustain some degree of damage or, at least, to succumb to frequent infections starting as viral common cold followed by bacterial rhinitis or rhinosinusitis. Crowding of family members around a single fire (heat) source in such a weather also promotes common cold transmission. The lengthy period of the very cold winter months is likely to hamper healing with progression to chronic rhinitis and nasal discharge including post-nasal drip; the latter is known to be aggravated by cold weather.[4] On the other hand, with avoidance of details, such a climate, in association with low socioeconomic status, (the most agreed upon strong risk factor associated with ESCC),[5] means increased exposure to smoke from old-fashioned heating, cooking and baking equipments. The nasal mucosa traps the smoke. The nasal secretions thus become similar to "soot." The swallowing of the post-nasal drip of "soot" subjects the esophageal mucosa to this carcinogen that has been accused since 1775 as a cause of scrotal skin cancer among chimney sweepers. The mentioned significant association of esophageal cancer with home baking by Moradi et al[1] is better ascribed to exposure to smoke during baking bread, possibly on "saaj," a concave iron plate with bread baking on its convex side. Baking is likely to depend on burning firewood or dried dung or coal processed from wood. Even kerosene could be a likely source of smoke when used inefficiently. Coal and kerosine are likely to be reserved for heating living rooms. As baking and cooking are duties of housewives, the male to female ratio of one for ESCC within the ECB,[5] needs not remain unexplained if this proposal proves to be true. Improvement of socioeconomic status is likely associated with gradual shift to modern methods and equipments for heating houses, cooking and baking. This means getting rid of smoke in inspired air; hence, the observed decreased incidence of ESCC in recent studies.[5] Naturally, exposure to "soot" has to be prolonged to exert an effect. In case of a study to test this proposal, patients and controls need evaluation of means of warming, cooking and baking for possibly each decade of their age and changes in such means to be taken into account, so as to estimate the cumulative exposure to smoke. Post-nasal drip is likely to be ignored by patients who had it for years or since childhood or every winter time because it does not sound important by the patient. Likewise, the attending physician is very likely to miss it unless he specifically looks for it by specific questioning of the patient and careful examination. Finally, I guess I need not to be blamed for neither investigating the proposal myself nor trying it with others in my locality, because it has to be studied in the ECB; this I could not have access to it.

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Reply from the Author

No reply was received from the Author.

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