CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN NEPAL

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Chronic bronchitis, emphysema, and cor pulmonale continue to plague Nepal especially in the hill and mountain regions where the atmosphere is supposed to be unpolluted. One of the main reasons for this has been smoke in the homes due to open fire places with no functioning chimney. Almost two decades ago this problem was well identified (1). Unfortunately even to this day it can be said that COPD (Chronic Obstructive Pulmonary Disease) tops the list of all medical admissions throughout the hospitals in Nepal not unlike a US veteran's hospital ! The tragedy is that unlike in Western countries, a lot of young people are affected by COPD and its complications. The table reproduced here is from a 1988 book (2) which had a limited circulation and is now out of print.

The data (shown in the table) was collected from a total population survey of randomly picked 4 of the 9 units of Chandanath Village in Jumla at 2045m. in Western Nepal. 211 houses were visited and 641 people were screened for chronic bronchitis. Chronic bronchitis is as defined by the British Medical Research Council (3) as cough and sputum production on most days for at least three consecutive months of two successive years. Anyone who fulfilled the criteria had the following tests done after a thorough physical exam by a physician: Chest x-ray, electrocardiogram and examination of sputum for Acid Fast Bacilli.

Cor pulmonale (right heart hypertrophy secondary to chronic lung disease like chronic bronchitis) was diagnosed only in those persons who showed evidence of right ventricular hypertrophy as recommended by the World Health Organization (WHO) expert committee criteria (3). The criteria used were as follows:

a) clinical- systolic thrust to the left of the sternum and sometimes in the epigastrium. The epigastric thrust was regarded as significant only if very prominent.
b) radiological - enlargement in the transverse diameter of the heart in the postero-anterior view. Films with an alteration in the contour of the pulmonary conus withfilling in of the normal concavity or actual convexity. Dilatation of the stem and main branches of the pulmonary artery.
c) ECG- the presence of qR pattern with delayed R wave in V1, V3R and V4R. In the absence of a qR pattern a combination of at least two of the following changes:
   - Alteration in the R/S ratio in the left chest leads with R/S less than 1 in V5.
   - Predominant S wave in standard lead 1.
   - Presence of an incomplete right bundle branch block with QRS less than 0.12 secs.

Two out of the above three criteria (a, b and c) had to be present to make a diagnosis

of cor pulmonale.

Prevalence of cor pulmonale in a mountain village (2045m) in West Nepal

Age Group	Men			Women			Both Sexes		
Yrs	**N**	**Cases ***	**Prev Rate (%)**	**N**	**Cases ***	**Prev Rate (%)**	**N**	**Cases ***	**Prev Rate (%)**
20-29	105	4	3.8	144	2	1.4	249	6	2.4
30-39	90	3	3.3	107	2	1.9	197	5	2.5
40-49	47	1	2.1	53	7	13.2	100	8	8.0
50-59	29	4	13.8	26	4	15.4	55	8	14.5
60-69	20	3	15.0	13	5	38.5	33	8	24.2
70+	4	1	25.0	3	0	-	7	1	14.3
Totals	**295**	**16**	**5.4**	**346**	**20**	**5.8**	**641**	**36**	**5.6**

*Cor pulmonale patients

The prevalence rate of cor pulmonale among men was 5.4% while it was 5.8% among women. This difference was not significant. The overall prevalence rate was 5.6%. The table also shows that even in the 20-29 age group there is a 3.8% and 1.4 % prevalence rate of cor pulmonale among men and women respectively. In this relatively young age group, such a high incidence of cor pulmonale as defined by this criteria is to my knowledge unknown anywhere in the world ! There were 3 cases of sputum-positive TB in the surveyed population with chronic bronchitis. None of them had cor pulmonale.

In addition no patients with bronchiectasis (a still common affliction in adults in developing countries) was found in this group, although this was actively looked for. Although this data was derived almost 2 decades ago there is little reason to doubt that in many mountain villages in Nepal the cor pulmonale rate is still very high. The introduction of chimneys in places like Jumla may have alleviated some of this problem but smoke caused by wood fire and cow or yak dung continues to be a problem.

In a recent study (4) in a house at Namche Bazar in the Everest region the carbon monoxide level was so high that the machine used for measuring the carbon monoxide was consistently sounding an alarm. Thanks to the poor architectural design of the houses, carbon monoxide levels do not build up and carbonmonoxide poisoning inside mountain village houses is uncommon. Unfortunately due to the arrival of inexpensive cigarettes from Western tobacco companies into the hills and mountains in Nepal (through radio and the vernacular papers) the children in the hills are even more motivated to smoke because of the enticement of the imagery of developed world affluence. The legendary pollution in the Kathmandu valley is yet another factor for COPD rates to be heading higher at least for the time being in Nepal.

Many trekkers in the Himalayas feel that doing tea house treks brings you closer to

the culture of Nepal. This is probably true but unless you search out a lodge with a good functioning chimney you run the risk of tearing eyes, a sputtering cough and being covered with some degree of soot. Luckily tent treks eliminate the latter problems and a good attitude also goes a long way.

Finally one of the things that may be hard to do is to look for chronic mountain sickness in Nepal. With all the indoor smoke, smoking, and coughing in the mountains in Nepal, it may be difficult to control for these factors, given that they are so pervasive, to make a clear cut diagnosis of CMS as a separate disease entity in the Himalayas.

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