



Quebec Beer-Drinkers' Cardiomyopathy: Forty-Eight Cases

Y. L. MORIN, M.D., F.R.C.P.[C],*
A. R. FOLEY, M.D., D.P.H., C.R.C.P.[C],†
G. MARTINEAU, M.D., M.P.H.‡ and J. ROUSSEL, M.D., D.P.H.,§
Quebec, Que.

DURING the fall and winter of 1965-66, 48 patients, all habitual consumers of large amounts of beer daily ("heavy drinkers"), were admitted to various Quebec City hospitals with an unusual type of cardiomyopathy.

The studies reported in this symposium derive from the investigations by many physicians, but many of the tedious analyses were carried out by Dr. Hughes Milon, now resident in Lyon, France.

In March 1966, an *ad hoc* committee was set up by Dr. Jacques Célinas, Deputy Minister of Health of Quebec; much valuable information was obtained from this group. On May 25, 1966, a symposium was held at Laval University and here the comments of Drs. Richard Bing, Timothy Regan, Alexander Heggveit and of other participants were extremely useful in the study of this condition.

Epidemiological studies were carried out by the Provincial Ministry of Health and the Quebec City Health Department.

This series of cases is typical of an epidemic in that they all occurred within a limited period of time (Fig. 1) and in the same region (most of the patients lived within the city, especially in the "Lower Town").

The experimental work in the following papers was supported by Grant No. 100-4M-220 of the Medical Research Council.

*Director, l'Institut de Cardiologie, Quebec, Que.; Co-ordinator of the Symposium on Cardiomyopathy.

†Epidemiologist, Ministry of Health, Province of Quebec.

‡Assistant Epidemiologist, Ministry of Health, Province of Quebec.

§Director, City Health Department, Quebec City.

Reprint requests to: Dr. Yves Morin, l'Institut de Cardiologie, 2725, chemin Sainte-Foy, Quebec 10, Que.

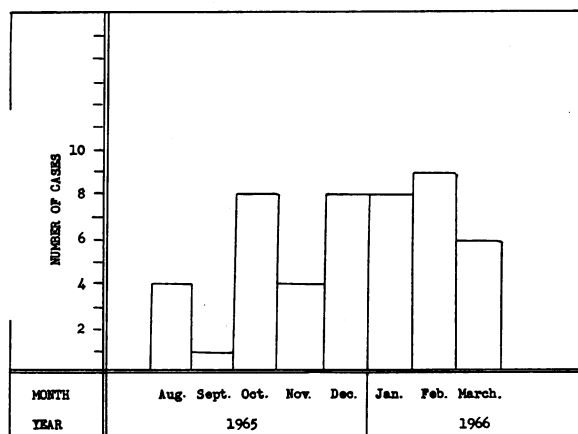


Fig. 1.—Dates of onset of the epidemic.

There were no patients under 25 years of age and none over 70; the age-specific incidence is shown in Fig. 2 while the percentage distribution

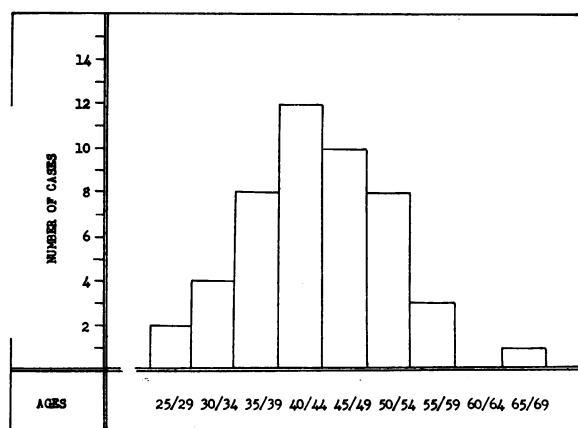


Fig. 2.—Age-specific incidence of the patients.

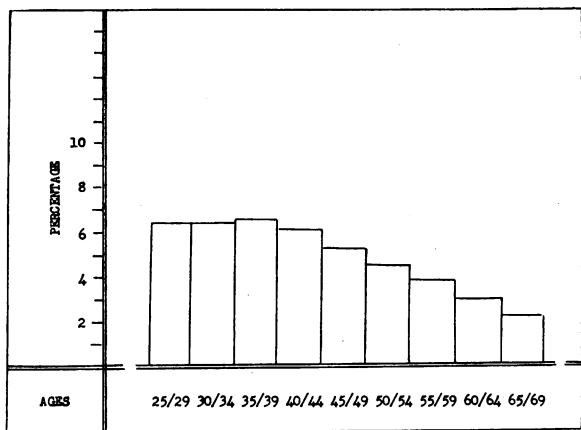


Fig. 3.—Percentage distribution of age groups in the population of the Province of Quebec, 1965.

of age groups in the population is shown in Fig. 3.

The amount of beer consumed daily and the duration of the consumption (in years) were obviously important factors in determining the incidence of this type of cardiomyopathy (Fig. 4): 44 of the patients drank more than 100 ounces per day (14 drank between 100 and 199 ounces and 30 drank more than 200 ounces per day). Forty-five had been heavy drinkers for 10 years or more (12 for between 10 and 19 years and 33 for more than 20 years).

Twenty of the 48 patients died—18 of the 46 male patients as well as the only two female patients—a mortality rate of 41.6%. The first death occurred in October 1965 and the last in

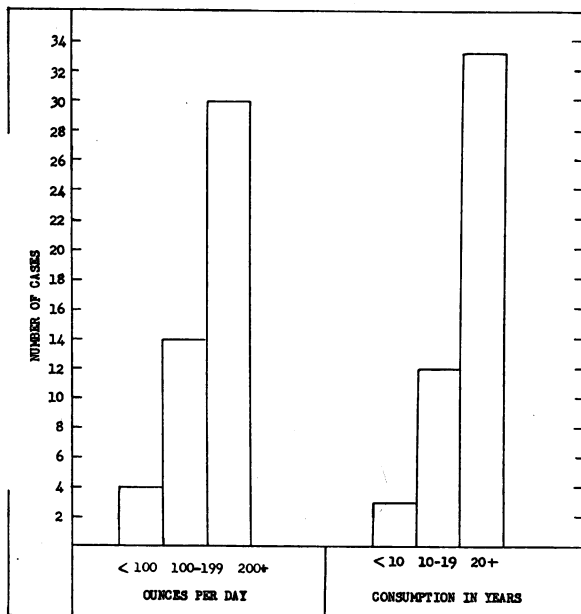


Fig. 4.—Distribution of cases in relation to the daily quantity of beer consumed and the duration of consumption in years.

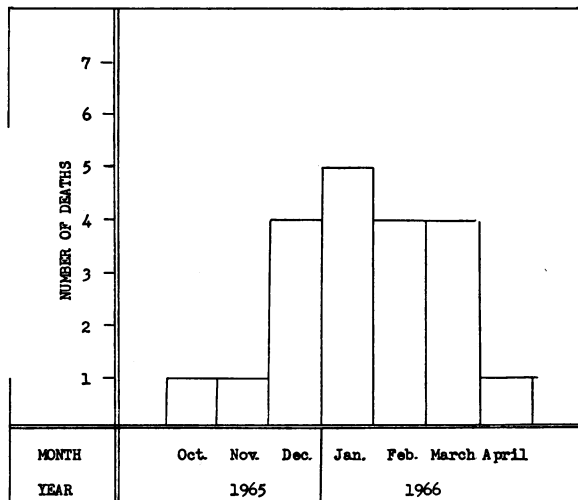


Fig. 5.—Distribution of deaths by months due to cardiomyopathy.

April 1966 (Fig. 5). The age-specific incidence of deaths is shown in Fig. 6. It is apparent in this series that the duration of daily consumption of large quantities of beer was more important in determining a fatal outcome in those developing cardiomyopathy than was the actual amount of beer consumed daily.

That there was an association between the development of cardiomyopathy and the consumption of a particular beer was proved. Forty-six of the patients consumed the same type of draught beer (brand XXX); one drank other brands as well and the forty-eighth patient drank only one other brand. (This could not be verified by the family.) Except when served in bottles, the type of beer consumed was unknown to the patients, but the evidence showed an association between this particular brand and the

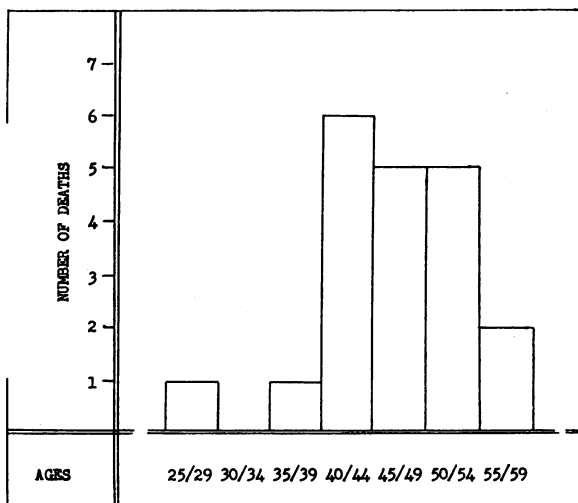


Fig. 6.—The age-specific incidence of deaths.

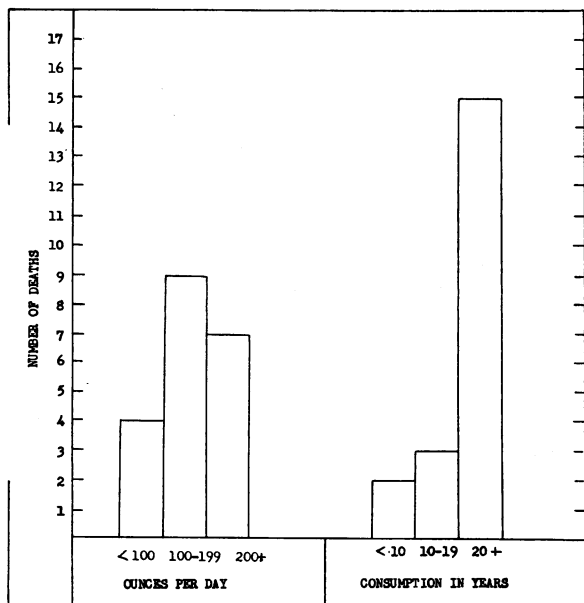


Fig. 7.—Distribution of deaths in relation to the daily quantity of beer consumed and the duration of consumption in years.

development of cardiomyopathy at this time. For example, the disease appeared one month after this particular brand was made with a

chemical additive, and no further cases were seen a month after this specific chemical was no longer used in making this beer (see Etiological Considerations, p. 926).

Summary Cardiomyopathy, occurring as an epidemic, affected 48 habitual beer drinkers in Quebec City. The incidence of this condition was directly related not only to the consumption of beer containing a chemical additive, but also to the amounts consumed daily and the duration of such consumption. The number of years of daily consumption of large amounts of beer appeared to be the most important factor in determining the resultant mortality—46.1%.

Résumé Quarante-huit buveurs de bière de Québec présentèrent en 1965-66 une cardiomyopathie dont la mortalité de 46.1%. Si le principal facteur étiologique semble être un additif de la bière, la gravité de la maladie est conditionnée surtout par la durée de l'alcoolisme.

The assistance of the Food and Drug Directorate (Ottawa), of Dr. R. F. P. Cronin in reviewing the manuscripts and of the Quebec Provincial Police who permitted two of their officers, Mr. Marc Saulnier and Mr. Raymond Lacroix, to participate in the investigation, is gratefully acknowledged.