EDITORIAL
Viral hepatitis at the Black Sea region: The problem of viral hepatitis in Turkey revisited

Türkiye'de viral hepatit probleminin Karadeniz bölgesi özelinde yeniden değerlendirilmesi

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The impact of epidemiological studies can be striking and may lead to significant scientific advances as is the case with the discovery of the connection of chronic viral liver disease and hepatocellular carcinoma which has been regarded as one of the most important scientific achievements of the second half of the 20th century (1). Important risk factors had been identified and preventive measures based on these results implemented. We have started to see the fruits of these studies and will continue to witness them (2, 3).

At a lesser scale of importance but still of paramount significance is that epidemiological studies on a particular disease may indicate regional trends in the disease of interest, guide in decision making and development of health strategies and may thus on the long run improve patient outcomes. Such studies are needed from different parts of the world from different countries and sometimes in big countries from different parts of that country. These epidemiological studies need to be repeated at certain time intervals to follow changes in the incidence of the disease in that particular region. Depending on the level of health and science infrastructure, epidemiological studies in a particular region may be plenty or scarce. Epidemiological studies on viral hepatitis in Turkey are not a rarity, thus are frequently encountered but there may be still room for novel studies which could potentially fill some gaps of previous studies belonging to the same time interval. The main reason for this is that "quantity" in most instances shows an inverse correlation with "quality". Hence, looking at published literature, there appears to be plenty of room for good quality epidemiological studies, actually, the fact is that such studies should be strongly encouraged and are an important need.

In this issue of the Turkish Journal of Gastroenterology, an example of such a study is provided with interesting results and should evoke goose bumps on Turkish health authorities or act as a wake-up call to health authorities, especially with regard to the prevalence of hepatitis B, if confirmed. The study conducted in the Black sea region of Turkey, reports of a hepatitis B (HB) and hepatitis C (HC) prevalence of 5.5% and 2.1%, respectively (4). Turkey is long known as a country with intermediate endemicity for hepatitis B and for many, a hepatitis B prevalence of 5.5% may appear in line with their expectation. Indeed, the overall prevalence of HB in Turkey was reported as between 4-5% in 1998 (5). This figure was mainly based on studies in blood donors. The dominant role of HB as an etiologic factor in patients with hepatocellular carcinoma, responsible for 56% of cases, supports this data (6). However, a recent study, again in blood donors, suggested that the prevalence appeared to have decreased in recent years. The study had analyzed viral hepatitis prevalence among blood donors encompassing the whole country in the 1989 to 2004 period (7). This study had assessed serological test results from a total of 6 240 130 donors. The overall prevalence for HBsAg was 4.19%. However, when annual prevalence rates were compared, it was seen that HBsAg prevalence made a peak in 1991 with 5.23% but after 1991 there was a steady decrease in prevalence rates reaching 2.1% in 2004 (7). Blood donation in Turkey is based on voluntary donation and blood obtained from military recruits during obligatory military service. Since 1992, voluntary blood donation always exceeded military donation. During voluntary blood donation those potential donors who were HBsAg-positive in a previous donation or appear as high risk for HB or HC are excluded at predonation screening. Thus, data obtained in blood donors are unlikely be representative of the community and may be an underestimation. The current study by Yıldırım et al

(4) is community based and is important in this context. It supports the concern mentioned above that seroprevalence studies among Turkish blood donors may underestimate the problem.

On the other hand, the data on HCV prevalence is in line with a previous community study (8) which had confirmed that also in Turkey HCV prevalence in the community is higher than among blood donors.

Another important factor in epidemiological studies is as mentioned the quality of the data. The quality can be assessed by checking if scientific paths of data collection were followed. In the study by Yıldırım et al (4), it appears that in general, this has been the case. The study had been conducted in the Tokat province in the Black Sea region using cluster sampling methodology. In that sense, the prerequisites for a scientifically sound epidemiological study have been met. However, this still does not guarantee reliable data. A critical issue in epidemiological studies is the sample size and here the researcher needs to make the right balance between precision of data and overall cost. In the ideal world, the researcher would decide on the precision needed and calculate the sample size accordingly (9). However, cost is in many instances the more important factor. The precision will depend on the size of the sample and the amount of clustering. The larger the sample, the more precise the estimate will be. This is not surprising. However, for the same sample size, a study using a larger number of clusters, will give more precise results (9). In the current study which was performed in Tokat having 530 000 inhabitants, a sample size of 1095 subjects was selected. For a prevalence estimate of 5% this sample size is unlikely to be enough. The lower the prevalence estimate, a bigger sample size is needed for a precise estimation; on the contrary, for a high prevalence estimate such as 30 to 40%, a smaller sample size may suffice (10). Thus, the anti-HBs prevalence rate may be a more reliable prevalence estimate than HBsAg or anti HCV prevalence rates. On the other hand, the study was conducted in 70 areas (12 urban and 58 rural). Thus the sample size was investigated using a large numbers of clusters with a cluster size of 15-16 subjects, which helps favorably to the precision of data when compared to an analysis using for example 10 clusters. Thus, the negative impact of the sample size is balanced with diligent use of cluster sampling.

Taken together, the manuscript by Yıldırım et al is a timely written manuscript using up to date scientific methodology. Taken advantage of scientific sampling methodology the authors were able to optimize estimated prevalence figures in terms of precision. The study is an alarming sign with regard to the true HB prevalence in the community and need to be confirmed by other studies. Prevalence distribution of HB is not homogenous in Turkey. HB virus in blood donors was reported as 9% in Southeast Turkey whereas it was around 3% in West Turkey (5). The same trend was seen in the etiology of hepatocellular carcinoma, where hepatitis B was the etiologic agent in 66% and 33% of cases in Southeast and West Turkey, respectively (6). Prevalence estimates in previous studies was concentrated to West, Central, Southeast and East Turkey. The study by Yıldırım et al is from the epidemiologically neglected northern part of the country and fills a gap also in this context.

REFERENCES

1. Johnson PJ. The epidemiology of hepatocellular carcinoma. Eur J Gastroenterol Hepatol 1996; 8:845-9.
2. Craxi A, Yurdaydın C. From viral pathobiology to the treatment of hepatitis B virus infection. EASL Monothematic Conference (Istanbul, Turkey, October 6-8, 2005). J Hepatol 2006; 44:1186-95.
3. Chang MH, Chen CJ, Lai HM, et al. Universal hepatitis B vaccination in Taiwan and the incidence of hepatocellular carcinoma in children. N Engl J Med 1997; 336:1855-9.
4. Yıldırım B, Barut Ş, Bulut Y, et al. Seroprevalence of hepatitis B and C viruses in the province of Tokat in the black sea region of Turkey: a population-based study. Turk J Gastroenterol 2009; 20:27-30.
5. Mistik R, Balik I. Türkiye'de viral hepatitlerin epidemiyolojisi. Bir metaanaliz. In: Viral hepatit 98. K Kilicturgay (ed). Viral Hepatitle Savasim Dernegi Yayini, 1998; 9-40.
6. Uzunalimoğlu O, Yurdaydin C, Çetinkaya H, et al. Risk factors for hepatocellular carcinoma in Turkey. Dig Dis Sci 2001; 46:1022-8.
7. Gürol E, Saban C, Oral O, et al. Trends in hepatitis B and hepatitis C virus among blood donors over 16 years in Turkey. Eur J Epidemiol 2006; 21:299-305.
8. Gürbüz AK, Doğalp K, Gülşen M. Hepatit C virus infeksiyonunda aile içi geçiş. Gastroenteroloji 1993; 4:405-408.
9. Bennet S, Woods T, Liyanage WM, Smith DL. A simplified general method for cluster sample surveys of health in developing countries. World Health Stat Q 1991; 44:98-106.
10. Değertekin H, Yalçın K, Yakut M, Yurdaydın C. Seropositivity for delta hepatitis in patients with chronic hepatitis B and liver cirrhosis in Turkey: a meta-analysis. Liver Int 2008; 28:494-8.

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