Seroprevalence of syphilis, hepatitis B and C, and human immunodeficiency virus infections among women

Yeletkin Demirel, MD, Bulent Duran, MD, Aydin Toktamis, MD, Omur Erden, MD, Meral Cetin, MD.

The possibility of intrauterine transmission from mother to child makes the infections of Hepatitis B virus (HBV), hepatitis C virus (HCV), syphilis and human immunodeficiency virus (HIV) important subjects in antenatal health care. In our antenatal clinic, we routinely screen all pregnant women for these infections. We reported a retrospective descriptive analysis of the screening results of 916 pregnant women who attended the Antenatal Clinic of The Medical School in Sivas, Turkey and 514 non-pregnant reproductive aged women that attended as replacement donors to the Blood Center of the Turkish Red-Crescent in Sivas, Turkey through the year of 2002. The majority of the pregnant women were from middle socio-economic class and were all married. No drug or substance abuse was reported in the pregnant group. Socio-demographic characteristics of the blood donor group were unknown, except the ages. Seroprevalence of the infections in both groups were shown in Table 1. Seropositivity rates of the infections were not dependent on age in the pregnant and blood donor groups. The seropositivity rates were also not dependent on gravidity and other socio-demographic parameters in the pregnant group (p>0.05).

These prevalences are consistent with those of low-risk populations, except HBV infection in both groups and HCV infection in the blood donor group. Recent data indicated that incidence of syphilis is increasing in many areas of the world with a rate as high as 15.8%.

However, we found venereal disease research laboratory (VDRL) positivity for only one woman in the pregnant woman group. In a recent study from Turkey, it was speculated that there was a significant decline in seroprevalence of HBV from 4.3-1.3% within 5 years. However, our findings do not justify such a speculation. The seroprevalence of HIV infection among pregnant women and blood donor women recorded in this study is higher than the worldwide reported prevalences. In the present study, only one out of 5 pregnant women had already antibodies against to hepatitis B surface antigen (HBsAg). Therefore, we should not expect a significant decline in HBV seroprevalence among pregnant women until the children who were vaccinated routinely against HBV infection become young adults. Although there is no recommendation to screen all pregnant women routinely for HCV infection and there is also no intervention to prevent mother-to-child transmission of HCV infection, we believe that pregnancy is an important time to screen HCV infection among young women with the following advantages: Many pregnant women will have already reached to their peak likelihood of being infected and antenatal testing will provide an opportunity to identify asymptomatic women with chronic disease who will likely benefit from modern therapy with interferon and ribavirin. Testing for HCV during pregnancy will also identify infants that need subsequent testing and follow up. Additionally, screening during pregnancy decreases the low but real risk of spread of HCV infection to household and other contacts. Therefore, we suggest that all pregnant women should be screened, until it is strongly evidenced that HCV testing in pregnancy should not to be performed anymore. The recommendation to screen HIV infection in pregnancy routinely has been present since 1994. We did not find any HIV positive pregnant woman. However, 4 HIV positive women were identified among blood donor women. This finding suggests that our population is not safe anymore against HIV infection.

Syphilis, HIV, HBV and HCV infections all share sexual intercourse as a common route of transmission. Therefore, a correlation among the prevalence of these infections is expected. However, we did not detect such a correlation. The absence of many sexually transmitted diseases such as syphilis and HIV infection in the Turkish population could only be explained by a traditional lifestyle which strictly restricts premarital sex, multiple sexual partnership, homosexuality and substance abuse.

In conclusion, screening all pregnant patients for HBV infection preserves its validity. Screening for HCV, HIV and syphilis in pregnancy are still the subject of debate, especially in low-risk populations. Nevertheless, we suggest that all pregnant women

Table 1 - Seroprevalence of infections.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>HBsAg</th>
<th>Anti-HBs</th>
<th>Anti-HCV</th>
<th>Anti-HIV</th>
<th>VDRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant women</td>
<td>19 (2.1)</td>
<td>179 (19.5)</td>
<td>2 (0.2)</td>
<td>0</td>
<td>1 (0.1)</td>
</tr>
<tr>
<td>Blood donor women</td>
<td>17 (3.3)</td>
<td>-</td>
<td>18 (3.5)</td>
<td>4 (0.8)</td>
<td>0</td>
</tr>
</tbody>
</table>

only HBsAg is routinely tested in the Blood Center of The Turkish Red-crescent. HBsAg - hepatitis B surface antigen, HBs - hepatitis B, HCV - hepatitis C virus, HIV - human immunodeficiency virus, VDRL - venereal disease research laboratory.
Obesity progression in school children

should be screened for these infections, until the opposite is strongly evidenced by the results of large-scale randomized-controlled trials.

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References


Progression of obesity among Seeb school children in Oman. A preliminary study

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Obesity is considered as the most prevalent form of malnutrition in developed countries and now it is also becoming increasingly prevalent in some developing countries. Its fast and widespread throughout the world can be compared to a communicable disease epidemic. Modern trends towards a sedentary lifestyle and over-consumption of energy dense foods are likely to result in obesity. Moreover, more and more obesity cases are now rooted in childhood, and these seem to be the most difficult to reverse.1

Obesity presents as a serious problem in the Gulf region and present indicators show that Omani society is not an exception to such trends.2 The rapid socio-economic development, which started in 1970, has led to rapid modernization accompanied by decreased physical activity and increased energy consumption. Although no information is currently available on obesity trends in childhood, recent data on the adult population are quite alarming. The National Health Survey 2000 of Omani adults shows that in the lowest surveyed age group of 20-34, 36.1% were overweight or obese, 26% with hypercholesterolemia, 17.7% with hypertension, and 8.4% having diabetes or glucose intolerance. Such prevalence figures increased rapidly with age reaching to 59.3%, 60.9%, 63.1% and 32.1% respectively for the age group of 55-64.3 Obese children are known to suffer life long consequences, not only physical but also emotional and psychological. In addition, obese children suffer from several psychological implications such as poor body image and eating disorders related to low self-esteem.1 In addition, the heavier body weight tends to act as an impediment to physical activity, which further compound the obesity problems. Nevertheless, recent reports from the Gulf region showed an association between obesity and hypertension among primary-school children. The overall prevalence of hypertension among primary-school children was found to be 5.1% in Kuwait and 4.8% in the Kingdom of Saudi Arabia. Furthermore, the increased prevalence of type 2 diabetes at a younger age suggests another implication of increasing child obesity. Child obesity is a precursor to adult obesity, as 70% of obese children become obese-adults with all increased health risk and associated chronic diseases, such as type 2 diabetes, hypertension, and hyperlipidemia. In this light, we attempted to study the progression of weight status among the same cohort of Omani school children at 3 successive ages; 6-7, 12-13 and 15-16 years, and compared such progression between the 2 genders.

We carried out the study among students enrolled in 2 public high schools in the Seeb district of the national capital region of Muscat, Sultanate of Oman. A cohort of 550 students in the age group of 6-7 years, who registered for the first time at the primary school level during the year 1993, formed the material of the study. This constituted a random sample of 400 males and 150 females. As a national policy, all students have to undergo a routine health examination at first entry to the primary level at age 6-7 years and subsequent entries to the preparatory level at age of 12-13 years and secondary level at
Concerned with malnutrition or communicable diseases, since child obesity was not much of a concern prior to modernization brought forth by an oil-based economy. Our analysis shows that the Omani school children observed in this study have the tendency for becoming overweight and then obese as they grow up. Mean value of BMI as well as the incidence of overweight and obesity progressively increased with age, with a higher rate of increase, as the children grew older. As the children grew older from the first school level to the third, the overall prevalence of overweight and obesity increased from 7.3-23.3% an addition of 16% of the total sample population. However, when examining only those children who were not above normal weight, we observe that 26.1% of them turn overweight or obese. The latter figure shows that the phenomenon of child obesity is much more serious than what it seems when examining the prevalence as a fraction of the total population at large. Under normal healthy conditions, when children turn into puberty they go through an increase in their height, which should reduce their BMI, rather than increase it. This is opposite to what we observed in our study population, which certainly confirms an unhealthy trend of increased obesity. Our results further showed that the risk of overweight and obesity at age of 15-16 was higher among those students who were previously overweight or obese at ages 6-7 or 12-13 than those who were not. Furthermore, the later our schoolchildren exceeded the normal weight level, the more likely they would retain such weight condition at age 15-16 (75% risk at age 12-13 versus 52.5% at age 6-7). These results are consistent with those reported elsewhere that child obesity is more likely to persist when it starts at a later age. They suggest that a higher priority should

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**Table 1** - Gender-wise distribution of weight status at 3 school levels.

<table>
<thead>
<tr>
<th>Weight status</th>
<th>6 - 7 Male</th>
<th>6 - 7 Female</th>
<th>12 - 13 Male</th>
<th>12 - 13 Female</th>
<th>15 - 17 Male</th>
<th>15 - 17 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>193 (48.2)</td>
<td>19 (12.7)</td>
<td>104 (26)</td>
<td>16 (10.6)</td>
<td>18 (4.5)</td>
<td>16 (10.7)</td>
</tr>
<tr>
<td>Normal</td>
<td>190 (47.5)</td>
<td>108 (72)</td>
<td>236 (59)</td>
<td>106 (70.7)</td>
<td>283 (70.8)</td>
<td>105 (70)</td>
</tr>
<tr>
<td>Overweight</td>
<td>13 (3.3)</td>
<td>16 (10.7)</td>
<td>42 (10.5)</td>
<td>22 (14.7)</td>
<td>62 (15.5)</td>
<td>20 (13.3)</td>
</tr>
<tr>
<td>Obese</td>
<td>4 (1)</td>
<td>7 (4.7)</td>
<td>18 (4.5)</td>
<td>6 (4)</td>
<td>37 (9.3)</td>
<td>9 (6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>400 (100)</td>
<td>150 (100)</td>
<td>400 (100)</td>
<td>150 (100)</td>
<td>400 (100)</td>
<td>150 (100)</td>
</tr>
</tbody>
</table>

**p-value**

- p<0.001
- p<0.01
- p<0.05

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be given to dealing with child obesity at a later school stage such as high school, where the likelihood of returning back to normal weight without intervention are slimmer.

Overall, our results give comparable trends to those reported in several other countries, such as Australia, Canada, United States of America and Kuwait. Moreover, various studies in those countries show accelerating trends of increased obesity prevalence, and Oman is likely to have similar trends, although this issue remains to be examined in future studies. There is one difference, however, between our results and those of some other studies, when comparing the performance between male and female students. At age 6-7, our females are observed to start with a substantially higher incidence of overweight and obesity than their male counterparts, but the 2 genders end up with a comparable incidence at age 15-16. This is also confirmed when observing the mean BMI values, as females had significantly higher BMI at the younger ages of 6-7 and 12-13 than males, but the 2 genders were comparable at age 15–16. Such observations may be explained from the Omani perspective as follows. At pre-school age, Omani boys are known to be more active and spend more time playing outdoors than Omani girls who tend to spend more time engaged in lighter indoor activities. As the girls grow into their teenage years, many of them become more conscious on their body image due to social and media influences and may thus become preoccupied with preserving a slim figure (but not necessarily a healthy one). At the same time, teenage boys begin to follow a more sedentary lifestyle, as they grow up, dominated by sitting at the computer or watching television or movies, while snacking at energy-dense junk foods and drinks. These teenage boys also tend to socialize with their friends by dining out in fast-food restaurants, ice-cream parlors, and so forth, all of which are notorious for serving energy-dense foods and drinks. In Oman, like many other countries, the emphasis on unhealthy and energy-dense foods is ubiquitous, and cannot be easily escaped especially by our young generation. Everyone seems to be falling prey to the strong influence of commercialism, as long as there is no adequate awareness or education to fend off such influences.

Our study covered 2 public schools in the capital area of Muscat, which may represent only one socio-economic segment of Omani society. Similar studies are therefore needed to cover other socio-economic segments such as students of private schools in the capital area as well as rural public schools. However, our study does point to a serious problem of rising child obesity in the Sultanate, if not in the whole Gulf region. Oman’s are becoming overweight and obese at younger ages. As the health risks associated with obesity increase, Oman will face greater health risks among its younger population. Consistent with our results, obesity is reported to track throughout life, meaning that its presence at any age will increase the persistence at subsequent ages. Many of lifestyle behaviors associated with the development of obesity are adopted in childhood, and it is more difficult to treat adult obesity that is rooted in childhood. Thus, strategies to promote healthy lifestyle need to focus on this learning period. There is therefore an urgent need for preventive and intervention measures to reduce future risks of obesity-related chronic diseases as the children grow into adulthood. Such measures should include: school education programs on healthy eating for healthy weight focussing on good eating habits, sports and gym facilities for the youth to encourage both genders getting involved in sports, improved variety of healthy foods and snacks in school cafeterias and food stores, community and media awareness programs to teach parents on how to shop and prepare healthy foods at home, while discouraging their children from eating foods, which are high in fat and low in nutritional value. Parents to spend quality time with their children, to educate them and play outdoors with them, while acting as role models for leading a healthy lifestyle. Further, parents and teachers should help their obese children to cope with social stigma, build their self-esteem, control their weight and develop healthy habits to stay fit for life; public health clinics to screen for obese children and enroll them into weight-management intervention programs, especially at the high school level because of the greater tendency to remain obese throughout adulthood.

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References