Transmission of Helicobacter Pylori

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Özet: *HELİCOBACTER PYLORİ'NİN GEÇİŞ YOLLARI*

Helicobacter Pylori'nin (HP) hangi yollarla bulaştığı henüz tam olarak açıklanamamıştır. Bu çalışma, fekal-oral ve oral-oral yayılımları bilinen Hepatit-A (HAV) Cytomegalovirus (CMV) ve Ebstein-Barr Virus (EBV) gibi çeşitli enfeksiyonların seropozitivitelerini, dolayısıyla da bulaş yollarını incelemek ve HP ile olan ilişkilerini açıklayabilmek amacıyla planlandı.

Çalışma grubu 0-55 yaş dağılımı gösteren 246 erkek ve 154 kadından oluştu. Yaş ortalaması 11,43 idi. Tüm bireylerden alınan serum örneklerinde HAV, HP, EVB ve CMV'e karşı oluşabilecek RgG natüründeki antikorlar mikro ELISA metodu ile araştırıldı.

Değişik yaş gruplarının sonuçları aşağıda verilmiştir. (HAV-HP: R = 0,754672) EBV-HP: R = 0,877761). 7 yaş grubundaki seropozitiviteler ise şöyleydi: anti-HP: % 68,2: anti-HAV: % 77,3 ; anti-EBV: : 72,7 ; anti-CMV: % 95,5.

HAV ve HP'nin geçiş yolları yakın bir ilişki göstermektedir. Bu önemli bulgu, HP'nin de fekal-oral ve oral-oral yolları kullandığını ve muhtemelen ilk HP enfeksiyonunun,viral enfeksiyon sırasında alındığını düşündürmektedir. Kritik yayılım yaşının ülkemizde ilkokula başlama yaşı ile aynı olduğu izlenmektedir.

Anahtar kelimeler: Helicobacter Pylori, geçiş yolları, viral enfeksiyonlar

Summary: *The route by which Helicobacter Pylori (HP) spread has not been yet definitely defined. This study was designed in order to investigate the seropositivity and hence the route of transmission of various infections such as Hepatitis-A (HAV), Cytomegalovirus (CMV) and Ebstein-Barr Virus (EBV), known to spread by fecal-oral and oral-oral routes and their relationship with HP.*

The study group was composed of 246 male, 154 female subjects, aged between 0-55 years with a mean age of 11,43 years.

Serum samples of the individuals were detected for Ig-G antibodies to HAV, HP, EBV and CMV by micro ELISA method.

Results in different age groups are given below (HAV-HP : R = 0, 754672; EBV - HP : R = 0,877761). Seropositivities in the age group of 7 are as follows; anti,HP : 68,2%, anti-HAV : 77,3%, anti-EBV : 72,7% and anti-CMV : 95,5%.

The transmission routes of HP and HAV show a close relationship. This important finding suggests that HP also uses oral-oral and fecal-oral routes and that the initial infection of HP is probably acquired during viral infection. The critical age in spread is the same as the starting age for the primary school in our country.

Key words: Helicobacter Pylori, transmission routes, viral infections

HP infection is generally accepted as an important cause of gastritis and peptic ulcer disease and is a risk factor for the development of gastric cancer. There is increasing evidence that many individual acquire this infection during childhood (1). The acquisition probably lasts for decades and may continue in adults with an age-related increase (2). It also seems that acquisition is earlier and more frequent in developing countries and infections from these regions are more likely to be resistant to metranidazole (> 90%) than in industrialized areas like Europa and Australia (< 20 %) (3).

Another person, animals or the environment can be the source of the human infection (4). The modes of transmission are not fully and definitely defined yet ; fecal-oral transfer, person-to-person spread and contamination of endoscopes have been proposed. The most significant finding for the epidemiology of HP is its detection in feces which supports the arguments for a fecal-

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Table I: Ig-G antibody positivity in different age groups

Age (yr)	Total Number of Subj.	Ig-G Antibody Positivity (%) HP	HAV	CMV	EBV
0-2	68	14,7	35,3	92,6	7,4
3-6	64	20,3	28,1	87,5	12,5
7-11	99	72,7	83,8	98	42,4
12-17	81	84,4	91,4	96,3	32,1
18-24	69	76,8	79,7	95,7	31,9
25-55	19	84,2	89,4	100,00	47,4
TOTAL	400	58,0	67,7	94,7	28,0

Table II: Ig-G antibody positivity in 0-7 age group

Age (yr)	Total Number of Subj.	Ig-G Antibody Positivity (%) HP	HAV	CMV	EBV
0-1	26	19,00	50,0	96,2	0,0
1	22	13,6	27,3	95,5	4,5
2	20	10,0	25,0	85,0	20,0
3	16	31,3	31,3	87,5	6,3
4	16	6,3	31,3	100,0	6,3
5	12	8,3	33,3	91,7	0,0
6	20	30,0	20,0	75,0	30,0
7	22	68,2	77,3	95,5	72,7

oral route of transmission (5). Person-to-person transmission of HP is suggested by the clustering of the infection found in institutions, families and occupational groups with close person to person contact. Person to person transmission is also supported by the demonstration that the endoscopy staff have a higher seroprevalence than the control subjects. However, the dentists do not show a tendency for HP colonization more than the endoscopy staff. The route of spread between individuals is not known. Evidence for transmission by oral secretion might be the occurrence of HP in dental plaque. It is also shown that under environmental stress, HP converts to a cocccoid form which can live up to 30 days in water (6). This is a supportive finding for the epidemiologic data demonstrated by Klein et al (7) that municipal water supplies may take part for the transmission of HP.

This study was designed in order to investigate the sero-positivity and hence the route of transmission of various infections such as HP, HAV, CMV and EBV known to spread by fecal-oral and oral-oral routes.

Table III

Age (yr)	Total Number of Subj.	Ig-G Antibody Positivity (%) CMV	HAV	HP	EB
0-2	68	92,6	35,3	14,6	7,4
3-6	64	87,5	28,1	20,3	12,5
7-11	99	98.0	83,8	72,7	42,4
12-17	81	96,3	91,4	84,0	32,1
18-24	69	95,7	79,7	76,8	31,9
25-55	19	100	82,5	84,2	47,4

SUBJECTS AND METHOD

The study group was composed of 246 male (range : 0-47 years) and 154 female (range : 0-55 years) subjects with a mean age of 11,43 years altogether.

Subjects of 0-6 age group were selected from kindergartens and daycare centers where as 7-11 age group was selected among the healthy students of primary schools. Secondary school and lycee students formed the 12-18 age group and medical faculty students as well as the healthy adults among the hospital staff composed the other groups.

Serum samples of the individuals were detected for Ig-G antibodies to HAV, HP, EBV and CMV by micro ELISA method.

RESULTS

Results in different age groups are given below in tables I, II, III and figure I (HAV-HP : R = 0.754672; EBV-HP : R = 0,877761).

CONCLUSIONS

1) The transmission routes of HP and HAV show a close relationship. This important finding suggests that HP also uses oral-oral and fecal-oral routes and that the initial infection of HP is probably acquired during viral infection.

2) HP, HAV and EBV infections are observed to be the infections for the age group of primary school.

3) The critical age for the risk and the spread of

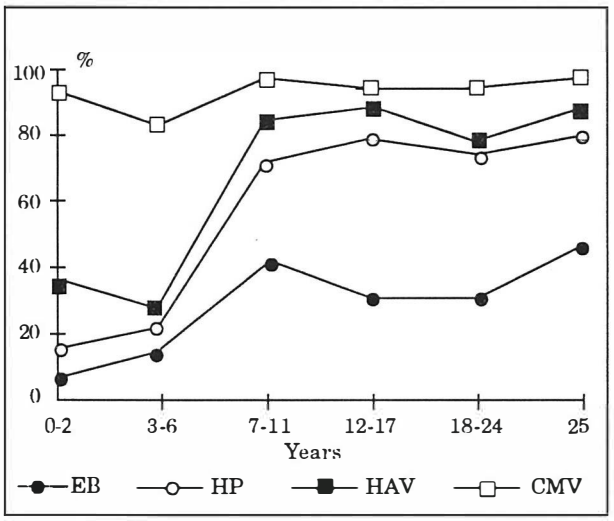

Figure 1. Antibody seroprevalence of various infections in different age groups.

these three infections (HP, HAV and EBV) is the same as the starting age (7 yr) for the primary school in our country.

4) HAV and EBV facilitates the settling of the HP infection (HAV-HP : R = 0,754672 ; EBV-HP : R = 0,877761)

5) CMV infection occurs mainly in the perinatal period.

KAYNAKLAR

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