Letters to the Editor

Hepatitis B Virus Markers in the Al Khari Region
Sir,

Hepatitis B virus markers have been extensively studied in Saudi Arabia and a significant amount of data has accumulated in Saudi literature, showing a marked regional variation in prevalence.1

This study was undertaken to ascertain the sero-prevalence of HBV markers in healthy Saudi blood donors and patients attending this hospital in Al Khari, an agricultural area with rural environmental conditions and the social set-up of a settled population.

Sera of 585 male blood donors and 474 patients (270 males and 204 females) over the age of 16 years were tested using the commercial ELISA kits. Among blood donors, the positivity rate for HBsAg was 7.1%, anti-HBc (alone) 5.2%, anti-HBs (alone) 28.3%, anti-HBc together with anti-HBs 20.8%, HBeAg in HBsAg positive sera 7.1% and the positivity rate for any HBV marker was 47.6%. A not dissimilar pattern was found among the patients. The HBsAg was 8.8%, anti-HBc (alone) 9.9%, anti-HBs (alone) 12.8%, anti-HBc together with anti-HBs 25.3%. The HBeAg in HBsAg positive sera was 4.8% and the positivity rate for any HBV serological marker was 56.9%. The positivity of the Hepatitis B virus marker was higher in males than in females, and it increased with age (see Table 1).

Table 1
Male and female patients with HBV markers according to age

<table>
<thead>
<tr>
<th></th>
<th>16–25 (years)</th>
<th>26–35 (years)</th>
<th>≥ 36 (years)</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (M)</td>
<td>71</td>
<td>54</td>
<td>145</td>
<td>270</td>
</tr>
<tr>
<td>Female (F)</td>
<td>44</td>
<td>79</td>
<td>81</td>
<td>204</td>
</tr>
<tr>
<td>1. HBsAg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>7(9.8)</td>
<td>4(7.4)</td>
<td>18(12.4)</td>
<td>29(10.7)</td>
</tr>
<tr>
<td>F</td>
<td>2(4.5)</td>
<td>6(7.5)</td>
<td>6(7.4)</td>
<td>14(6.8)</td>
</tr>
<tr>
<td>2. Anti-HBs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>15(21.1)</td>
<td>17(31.4)</td>
<td>66(45.5)</td>
<td>98(36.2)</td>
</tr>
<tr>
<td>F</td>
<td>11(25.0)</td>
<td>31(39.2)</td>
<td>44(54.3)</td>
<td>86(42.1)</td>
</tr>
<tr>
<td>3. Anti-HBc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>24(33.8)</td>
<td>26(48.1)</td>
<td>85(58.6)</td>
<td>135(50.0)</td>
</tr>
<tr>
<td>F</td>
<td>9(20.4)</td>
<td>30(37.9)</td>
<td>42(51.8)</td>
<td>81(39.7)</td>
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<td>4. Positivity for any marker</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>29(40.8)</td>
<td>30(55.5)</td>
<td>104(71.7)</td>
<td>163(60.3)</td>
</tr>
<tr>
<td>F</td>
<td>13(29.5)</td>
<td>40(50.6)</td>
<td>54(66.6)</td>
<td>107(52.4)</td>
</tr>
</tbody>
</table>

Our results were found to concur with those reported from a tertiary referral hospital in Riyadh,2 3 despite the fact that the population in this study had a predominantly rural background.

References

Hernial Appendicitis in a 32-day-old Infant
Sir,

Appendicitis encountered in an external hernia is a rare condition. It usually occurs in middle and old age;1 very rarely it occurs in infants, in which case it always occurs in the right inguinal hernia of males. We report such a case in a 32-day-old male who was admitted as an emergency with a right inguino-scrotal swelling of 1-week duration, which had increased in size with scrotal redness over the last 24 hours prior to admission. Examination revealed an apyrexic sleepy infant with mottled skin, a partially reducible right inguino-scrotal swelling with audible gurgling of the contents on palpation. There was an area of enduration over the neck of the scrotum. A provisional diagnosis of a strangulated inguinal hernia was made. Following failure of reduction using Gallow’s traction and sedation, an operation was carried out 2 h later.

On dissection of the hernial sac off the cord, the contents reduced spontaneously, and on opening the sac the induration was found to be an area of inflammation inside the sac and looked as if some tissues were adherent to it. On inspecting the deep ring, the caecum was seen and on bringing it out the appendix with an inflamed distal part came out with it. Routine appendicectomy with herniotomy was carried out under cover of antibiotics. The postoperative period was uneventful. The histopathology was that of ischaemic necrosis of the appendix.

The occurrence of appendicitis in the first year of life is quite rare2 and only in a few patients is the pathology in external hernias which are almost always the right indirect inguinal hernia sac of male infants. The literature available is mostly based on single case reports. This is in contrast to hernial appendicitis in adults which is more common and has been reported in both sexes1 and all types of external hernias.3

Tyrrel4 collected 59 cases of hernial appendicitis, and only four of them were under the age of 2 years with no mortality. The remainder of the cases were over the age of 30 years. He classified hernial appendicitis into primary and strangulated appendicitis based upon whether the appendicitis occurred de novo or due to strangulation in the sac. He found that in adults the strangulation variety was twice as common than that of primary appendicitis while in infants they were of equal occurrence.

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Synder & Chaffin reviewed acute appendicitis in the first 2 years of life. Seven occurred in the right inguinal hernias of males. They found that the mortality of intraabdominal appendicitis was around 29% while in hernial appendicitis it was 14%.

Recently Srouji & Buck reported a case of ischaemic appendicitis in an indirect right inguinal hernia in a 12-day-old male. They collected 106 cases of acute appendicitis occurring in the first 30 days of life over the period 1901–1975. Of these they found 33 cases of hernial appendicitis with no mortality.

Bar-Maoz & Zeltzer found nine cases of premature infants with hernial appendicitis including their own case. The most recent case reported was that of an intrauterine strangulated right inguinal hernial appendicitis in a patient who recovered postoperatively.

Our conclusions are:

1. Almost all of the cases of hernial appendicitis in infants were diagnosed preoperatively as strangulated, incarcerated, or irreducible hernias with no idea about the contents and this calls us to stress the need for early surgery in irreducible inguinal hernias in infants when conservative measures fail.

2. The prognosis in hernial appendicitis in infants is better than that of intraabdominal appendicitis. This is well documented in paediatric text books. This is due to an early presentation (and thus diagnosis) and localization of peritonitis in the hernial sac in cases of hernial appendicitis which perforate. This is in contrast to the delay in diagnosis and thus higher incidence of perforation and failure of localization in intraabdominal appendicitis.

3. With strangulated hernias it is wise to try to inspect the deep ring and attempt to bring out any visible bowel, especially if there is any evidence of inflammation in the lining of the sac.

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References

The Labyrinth and Environmental Heat Stroke: A New Hypothesis

Sir,

I read with interest the letter from Dr Baraka (Saudi Med J 1990; 11 (2): 159–160) on the labyrinth and environmental heat stroke, and would like to make the following comments.

The suggestion that the primary heat insult that precipitates environmental heat stroke probably involves the higher thermoregulatory centres is acceptable. However, the author did not rationalize the crucial point in his thesis with respect to the suggested 'unilateral' diminution of function of the vestibular system as an initial trigger to heat stroke in the vulnerable patient. It is understood that the patient is in a hot environment with both vestibular systems exposed to the same temperature gradients. So, why should the system on one side or the other suffer a diminution in its function or a unilateral hot caloric stimulation _in situ_?

Secondly, the interconnections between the vestibular endorgans, vestibular nuclei and the cerebellum may explain dizzy states, when disturbed, but their influence on the sympathetic neurons of the spinal intermedio-lateral column is rather doubtful. This is because the vestibulospinal and reticulospinal systems are primarily motor and contribute mainly to postural control mechanisms.

The core point in the author’s hypothesis is a unilateral caloric stimulus occurring in a patient whose head temperature is presumably equal on both sides. Temperature recording from both tympanic membranes as an initial step would probably throw some light on the normal variation and ranges of temperature gradients on the two sides of the head in normal subjects and patients.

The author has bypassed the anterior hypothalamic centres which have thermoreceptors and are more efficient in responding to a rise in head and core temperatures. The documented existence of two-way connections between the hypothalamus and the brain-stem reticular formation would probably make the disturbance of these centres and/or pathways more likely to be involved as possible mechanisms in the pathogenesis of environmental heat stroke than the suggested cerebello-vestibulo-spinal sympathetic connections.

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Testing has left much to be desired and even in AIDS patients and asymptomatic positives has been 42% and 17%, respectively.2

The father had not seroconverted despite close sexual contact with his wife for a 4-year period. That should not be all that odd since there is no relationship between the risk for acquiring HIV infection and length of heterosexual relationship or the number of acts of sexual intercourse. A marked heterogeneity operates between an individual’s HIV infectivity as well as the viral susceptibility.3 For an aggressive transmission from a female, a concomitant sexually transmitted disease (STD) and a genital ulceration greatly enhance viral spread during vaginal or anal intercourse.4,5

HIV spread during intercourse should be halted by continuous use of spermicidal agents with demonstrable HIV activity by both partners. The spermicidal agent, benzalkonium chloride, exerts a direct inhibitory effect on the reverse transcriptase activity at concentrations of 0.05% and above. The direct exposure of seminal or genital fluids loaded with HIV-1 leads to complete viral inactivation within 5 min.6 Nonoxynol-9, another spermicidal, also possesses anti-HIV activity and has been incorporated in vaginal suppositories and condoms to protect against HIV spread. Chlorhexidine increases the viscosity of mucus and when used as mouthwash after oral sex, has the potential of halting viral spread.7 Incorporation of antiviral antisepsics in condoms, suppositories and mouth washes could halt HIV spread during different sexual acts by HIV carriers.

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Maternal Transmission of Human Immunodeficiency Virus (HIV)

Sir,

Maternal transmission of HIV has been demonstrable in two of the three children born to a young Saudi female at the Armed Forces Hospital, while the husband and the second child have been negative for tests for viral antigen and the screening test for HIV antibody.8 The loss of the family for follow-up studies is indeed unfortunate as it would not be feasible to test the peripheral mononuclear blood cells (PBMC) for HIV DNA sequences by polymerase chain reaction.

Tests for HIV-1 DNA sequences on mononuclear cells from peripheral blood in 409 adults positive for HIV-1 antibody during immunoblot testing, have been uniformly positive by polymerase chain reaction (PCR). Furthermore, HIV-1 DNA sequences were not detected in any of 43 seronegative individuals.9 PCR assays on the father and the hitherto negative child could be expected to resolve the anomalous escape from HIV spread from the initially infected mother. The sensitivity of serum HIV-1 antigen

References


Sir,

We are fully aware of the usefulness of examining the peripheral mononuclear blood cells for HIV DNA sequences by polymerase chain reaction (PCR), but we had no facilities for doing this test at the time of writing. Hence, we have suggested that both the father and second child need to be followed up clinically and immunologically (including PCR) for at least 5 years.

Dr Arya's discussion on the use of spermicidal agent to prevent HIV transmission does not fall within the realm of our paper, since it was never used by the family in question. However, we would like to point out that although benzalkonium chloride, nonoxynol-9 and other spermicides such as octoxynol-9, menfegol and chlorhexidine destroy HIV rapidly in in vitro tests, preliminary studies in vivo have been disappointing in preventing HIV. In a study of 51 Nairobi prostitutes who used a contraceptive sponge containing nonoxynol-9, HIV infection occurred in about the same frequency as in control prostitutes using suppositories without nonoxynol-9. Clearly, more studies are required before these spermicides can be confidently relied upon in preventing HIV transmission. For this reason, the United States Agency for International Development in 1989 recommended that the use of spermicides only, without condoms, should not be promoted for prevention of HIV transmission. For now, the use of a male condom, combined with a spermicide of proven efficacy, should be considered when counselling spouses whose partners have HIV infection, but the female condom currently under manufacture in the USA appears to be more promising.

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Phaeochromocytoma: Diagnosis and Treatment

Sir,

The review article by Drs Al-Nuaim and Al-Desouki (Saudi Med J 1989; 10(6): 446–453) was of utmost interest. In addition, a number of other biochemical tests have been reported as being useful in the diagnosis of phaeochromocytoma.

A promising approach for diagnosing equivocal cases of phaeochromocytoma is based on the differential metabolic fates of the noradrenaline (NA) pool. Patients with phaeochromocytoma tend to have high levels of plasma NA which is released and secreted directly from the tumour into the circulation without prior metabolism while NA released from nerve endings is mainly recaptured and metabolized in the nerve endings to dihydroxyphenylglycol (DHPG). Measured simultaneously in plasma or urine the two analytes provide a means of separating the NA pool into its sympathetic and adrenal components. In individuals with sympathetic overactivity the NA rise is accompanied by a proportional increase in DHPG while phaeochromocytoma patients have both high circulating and urinary NA levels with no elevation in DHPG. Calculation of NA/DHPG ratio, therefore, gives a direct measure of extraneuronal NA levels. In 15 patients with phaeochromocytoma, the ratio in plasma was greater than 2.0, whilst in 16 control subjects the ratio was less than 0.5. Other workers were also successful in separating all individuals with either elevated plasma or urinary NA into tumour and non-tumour patients using this approach. Moreover, this test has the advantage that it can be performed using a single plasma or random urine sample and so it can overcome the problem of incompleteness or overzealous 24 h urine collection.

Recently, an additional marker has been described as a probe of sympathetic-adrenal activity. Chromogranin A is the major soluble protein stored and secreted by exocytosis, along with catecholamines, from vesicles in the adrenal medulla and sympathetic nerves. The plasma level varied with physiological, pharmacological and pathological changes in sympathetic-adrenal activity. In 11 patients with phaeochromocytoma the concentration of plasma chromogranin A (reported as mean ± SEM) was 1614 ± 408 ng/ml compared with 129 ± 12 ng/ml in 18 control subjects. Although, however initial reports suggested that this approach may not be so successful in discriminating between tumour and non-tumour patients, the capacity to measure circulating chromogranin A may lead to a new diagnostic tool in several states of endocrine diseases particularly hyperfunction.

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References


References

Sir,

The issue of measuring catecholamine metabolites such as 3,4-dihydroxyphenylglycol (DHPG) or nerve tissue protein such as chromogranin A was not addressed in the review article of pheochromocytoma, as they are not considered a routine component of the work-up for the diagnosis of pheochromocytoma.

It was shown initially by Brown,1 that the norepinephrine/DHPG ratio in plasma has been consistently elevated in patients with pheochromocytoma. The hope was to find a simple approach for the exclusion of pheochromocytoma in patients with borderline elevation of plasma normetanephrine concentration. However, a recent report by Duncan et al.2 described four of 25 patients with pheochromocytoma whose norepinephrine/DHPG ratio in urine and plasma was normal or even low. This subgroup was characterized by a high production of DHPG.

As far as chromogranin A is concerned, the chromogranins represent a family of proteins with widespread distribution in neuroendocrine tissues and tumours.3 Among them, is chromogranin A, which has been shown by O'Connor4 to be elevated in patients with peptide-producing tumours including carcinoids and pheochromocytomas. There is a great potential in the future for using chromogranin A as a screening tool for endocrine neoplasia.

References