Results

Table I shows no evidence of a difference in the subjects' mean respiratory exchange ratio when watching the three videos or the blank video ($F_{3,27}=0.43$, $P=0.73$). The log of the standard deviation of the response within each video showed no significant differences ($F_{3,27}=1.38$, $P=0.27$). Geometric means of the standard deviations of the responses within each video are shown in table II.

Energy expenditure was no different between videos ($F_{3,27}=1.58$, $P=0.22$) but the mean expenditure while watching the exciting video was higher than for the blank video. The log standard deviation of energy expenditure did not differ between the videos ($F_{3,27}=1.95$, $P=0.15$).

Energy expenditure during the "exciting" video varied among individuals, with eight of the 12 subjects showing an increased energy expenditure. Neither heart rate nor aural temperature showed overall significant changes between videos. Changes in heart rate to

the "exciting" film ranged from no change to a rise of 34 beats/min within a minute. There was no difference in responses between men and women.

Discussion

Overall there were no significant changes in mean values of energy expenditure, heart rate, or body temperature during the different film clips. The difference in energy expenditure between the blank and the exciting film clip may just be chance since numerous analyses were performed. Nevertheless, during the first five minutes of the exciting clip there was a noticeable surge in the energy expenditure trace in eight out of the 12 subjects. This coincided with the gruesome scene in *Alien* in which the creature violently bursts out of John Hurt's abdomen and scuttles across the floor. None of the other clips showed such a consistent response in subjects. Heart rate responses to this scene varied widely.

The mean change from basal in energy expenditure of 209 kJ/day is the equivalent in energy terms of a handful of sweetened popcorn and therefore cannot be recommended as a reliable method of losing weight. Indeed, responding to the call of the exercise bike, jogging kit, and taking the dog for a walk is still the only sure way of meaningfully raising energy expenditure to counteract the seasonal weight gain.

The lack of significant change in heart rate and aural temperature in the group suggests that these are not sensitive measures of catecholamine release. This work has shown that watching videos during indirect calorimetry has little effect on the average measurements provided that measurements are continued for long enough (> 20 minutes).

We thank the participants, the video distribution companies for permission to use their films, and Messrs Horton and Vaziri of Express Video, Gosforth, Newcastle upon Tyne, for the loan of the video tapes.

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Table 1—Mean respiratory exchange ratio and energy expenditure while watching videos

Video	Respiratory exchange ratio		Energy expenditure (kJ/day)	
	Mean	Difference (95% confidence interval)	Mean	Difference (95% confidence interval)
Blank	0.855		5619	
Pleasant	0.857	0.0019 (-0.0517 to 0.055)	5723	107 (-101 to 315)
Exciting	0.877	0.0217 (-0.0314 to 0.075)	5837	217 (8 to 425)
Amusing	0.876	0.0216 (-0.0315 to 0.075)	5694	007 (-134 to 282)

Table 2—Geometric means of standard deviation of responses to each video

Video	Respiratory exchange ratio	Energy expenditure (kJ/day)
Blank	0.044	465
Pleasant	0.037	324
Exciting	0.057	446
Amusing	0.038	324

HLA-DR4 and career prospects in rheumatology: is there a link?

A Gough, J Faint, M Salmon, P Bacon, P Emery

Abstract

Objective—To determine whether HLA type is associated with career progress in rheumatology.

Design—Comparison of HLA type after HLA analysis of samples of venous blood.

Setting—Department of Rheumatology Research, University of Birmingham.

Subjects—All (37) staff in the department.

Results—All the senior academics and most staff with a PhD expressed HLA-DR4. The prevalence of expression in each of these groups was significantly greater than that found in the controls. None of the junior doctors or secretaries expressed DR4.

Conclusion—The junior doctors in the department have poor career prospects as HLA-DR4 seems to be associated with academic achievement.

Introduction

The study of the human major histocompatibility complex on chromosome 6 has led to an increased

understanding of the pathogenesis of several diseases. In our department the major histocompatibility complex class II associations of rheumatoid arthritis have been of particular interest.^{1,2} HLA typing of new patients presenting with early rheumatoid arthritis is now seen as having an important role in the planning of their management. As part of our research we determined the HLA type of all the members of our department, with some interesting results.

Methods

In 1992, 38 members of the department of rheumatology gave their informed consent to the taking of an 8 ml sample of venous blood for HLA analysis. We allocated the subjects into five groups: senior academics, staff with a PhD, research workers, junior doctors, and secretaries. We recruited 297 healthy controls. DNA was isolated with phenol extraction, after which we used the polymerase chain reaction to amplify the HLA-DR β alleles using standard techniques.³ We

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BMJ 1995;311:1665-6

Group	Expression of HLA-DR4
Senior academics	4/4 (100)
Staff with a PhD	8/12 (66)
Research workers	3/15 (20)
Junior doctors	0/4 (0)
Secretaries	0/2 (0)
Controls	103/297 (34.7)

then blotted the products into nitrocellulose filters and hybridised them to specific oligonucleotide probes for the DR4 subtypes Dw4 (0401), Dw10 (0402), Dw13 (0403), Dw14 (0404, 0408), and Dw15 (0405).

Also, we performed restriction fragment length polymorphism, using the method of Bidwell and Jarrold.⁴ This confirmed the oligonucleotide probing and determined the presence of homozygous alleles. We used Fisher's exact test to compare the groups in terms of how often HLA-DR4 was expressed.

Results

The table shows the distribution of expression of HLA-DR4 among the different groups. HLA-DR4 was expressed in a significantly larger proportion of the senior academics ($P < 0.05$) and staff with a PhD ($P < 0.01$) than of the controls. HLA-DR4 was also expressed in a significantly larger proportion of the senior academics and staff with a PhD combined than of the junior doctors ($P < 0.05$).

Discussion

There is no doubt that HLA-DR4 is linked with rheumatoid arthritis and that it affects disease outcome.^{2,5} Its association with academic performance, however, has not been previously described and will need to be confirmed by further studies. Interestingly we know the HLA type of only one other professor of rheumatology in Britain, and he too is DR4 positive (Professor Panayi, personal communication). The lamentably low distribution of this epitope among the junior doctors in our department not only has grave implications for their careers but also confirms the suspicions of the scientists in our department regarding the intellect (or lack of it) of these doctors. Interestingly, the most recent recruit to the MB PhD programme is also DR4 positive; aspiring colleagues should watch his career with concern. As HLA-DR4 is a fixed genetic factor there seems little that we can do to alter the poor prospects of those who are DR4 negative.

A threat to career prospects?

These findings, however, are also of some concern to the senior members of our department with regard to their long term health as DR4 positivity probably influences their risk of developing rheumatoid arthritis. To date, two of the senior academics and one PhD fellow have had an episode of transient symmetrical synovitis, emphasising their uncertain prognosis. Thus these achievers of excellence may have only brief and glorious careers before the onset of this crippling disease.

It is often said that chance associations have led to some of the greatest scientific discoveries. We believe that in this particular case this is extremely unlikely!

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Polythemia gravis: the downside of evidence based medicine

Down End Research Group

The impetus for this case report and study protocol was the admission to hospital of a senior physician with a fractured neck of femur. On the night of the accident the patient had got up to pass water and slipped on a pile of journals still in their plastic wrappers which were lying on the floor beside his bed. The history revealed gradually increasing nocturia compatible with age related benign prostatic hyperplasia. On direct questioning he admitted that he had recently performed a bone densitometry measurement on himself and found a slight reduction of bone density compatible with a male menopause some 10 years earlier. He also admitted that he felt an increasing sense of guilt and inadequacy associated with an inability to keep up with the journals. On the DEWLAP index (see table 1) he scored moderately high for his age. His JASPA score (see table 2) was 5, consistent with a mound of journals kept by the bed, avalanching both under the bed and across the room. The oldest journal in the pile was nearly five years old, and the JOCA (journal cumulative age) index (total number of journals multiplied by the age of each one) was in excess of 100.

The patient made an uneventful recovery after

surgery and returned to clinical duties in three months despite being in moderate continuous pain and receiving regular analgesia; his walking distance was only 30 yards. Follow up at this time by the orthopaedic consultant briefly recorded an "excellent result," and the patient was discharged from clinic. Paradoxically there was a significant improvement in his DEWLAP score, perhaps because he was no longer able to get up to London (to attend meetings of college committees) and because ward rounds were abandoned after the first two patients because he could not limp any further. Despite his pain and disability a dramatic overall improvement in his affect was also noted. This followed his decision, after his stay on the orthopaedic ward, to donate all his journals (unread) to needy doctors in Third World countries. His JASPA score fell to 0 after this decision.

Comment

We have named the condition described above "polythemia gravis." We believe that this may be the first of many cases that will subsequently be seen as the