MAILBOX

Increased lens dipeptidase activity in aging and cataract

EDITOR—A new protease enzyme in the human lens, dipeptidase, has been purified to homogeneity and characterised recently by Sulochana et al.1 This enzyme is specific for dipeptides in its protease function while two other lens proteases, leucine aminopeptidase and amino peptidase III,3 can act on di-, tri-, and oligopeptides. It is reported that the activity of amino peptidase III did not change with age but the specific activity decreased in human cataract lenses.2 Two viewpoints on the role of such proteases have been discussed by earlier workers—namely, a decline in the proteolytic enzymes with age leading to an accumulation of degraded proteins2 and an excessive proteolysis destroying essential structural proteins.3 A study was carried out to find the activity and specific activity of dipeptidase in cataract and aged lenses. The enzyme activity was measured using Leu-Try as substrate by following the procedure described earlier.1 Lenses from human donor eyeballs and the operation theatre of Sankara Nethralaya, Vision Research Foundation were used for the analysis.

Activity and specific activity of human lens dipeptidase (normal and cataract) were compared with different age groups and are given in Tables 1 and 2. Though the activity tends to increase with age in the donor eyeball group, the increase is not statistically significant. There is not much difference in the activity among various age groups studied in cataract lenses. However, the specific activity in non-catarract lenses of donor eye in the age group 31–40 is only 0.159 unit/mg protein but that of cataract lens is almost double, at 0.33. Likewise, there is also a statistically significant increase in the specific activity in the cataract group compared with normal in the age groups 41–50 and 51–60.

The specific activity of an enzyme is a better index for assessment of enzyme function than the activity. This increase in specific activity was not only related to aging but also to cataract. Increased specific activity indicates that the dipeptidase enzyme may be a vital protein. Though many other lens proteins undergo either denaturation or precipitation, this enzyme remains viable and, in this context, it is of interest to note that the specific activities of exopeptidases are increased in cataract lenses.2 The specific activity of dipeptidase for three age groups 31–40, 41–50, and 51–60, has increased for cataract lenses compared with that of donor eyeball. The differences are statistically significant. This clearly indicates that the specific activity increases with cataractogenesis. It is also interesting to note that even among the donor eyes, the specific activity 0.159, for the age group 31–40, increased progressively in age groups 41–50, 51–60, and 61–70 for the age group 71–80 suggesting its role in advancing age.

K N SULOCHANA
S RAMAKRISHNAN
R PUNITHAM
Biochemistry Research Department, Vision Research Foundation, 18 College Road, Chennai 600 006, India


TABLE 1 Activity of dipeptidase in human donor eyeball lenses (values are mean (SE))

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Mean total activity (units/lens)</th>
<th>Mean specific activity (units/mg protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31–40</td>
<td>31.0 (2.6)</td>
<td>0.159 (0.055)</td>
</tr>
<tr>
<td>41–50</td>
<td>36.2 (1.88)</td>
<td>0.189 (0.028)</td>
</tr>
<tr>
<td>51–60</td>
<td>15.1 (3.43)</td>
<td>0.233 (0.041)</td>
</tr>
<tr>
<td>61–70</td>
<td>16.52 (1.61)</td>
<td>0.436 (0.064)</td>
</tr>
<tr>
<td>71–80</td>
<td>14.525 (2.94)</td>
<td>0.413 (0.092)</td>
</tr>
</tbody>
</table>

Values on specific activities between 31–40 and 61–70 <0.02; 41–50 and 61–70 <0.005; 51–60 and 61–70 <0.05.

TABLE 2 Activity of dipeptidase in human cataract lenses (values are mean (SE))

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Mean total activity (units/lens)</th>
<th>Mean specific activity (units/mg protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31–40</td>
<td>37.6</td>
<td>0.33 (0.033)</td>
</tr>
<tr>
<td>41–50</td>
<td>45.2</td>
<td>0.385 (0.075)</td>
</tr>
<tr>
<td>51–60</td>
<td>54.7</td>
<td>0.418 (0.055)</td>
</tr>
<tr>
<td>61–70</td>
<td>66.3</td>
<td>0.463 (0.058)</td>
</tr>
<tr>
<td>71–80</td>
<td>77.2</td>
<td>0.421 (0.047)</td>
</tr>
</tbody>
</table>

Values on specific activities between donor lens (Table 1) and cataract lens (Table 2) 31–40 <0.01; 41–50 <0.05; 51–60 <0.01; 61–70 and 71–80 not significant.

BOOK REVIEWS


This book deals with a very difficult area of oculair anterior segment pathology. The diverse aetiology; the frustrating clinical problem; both for the patient and the ophthalmologist; the complex management issues impinging on several subspecialties within ophthalmology and beyond, make it as much of a challenge to write about as it is to deal with. The editors, drawing on their own expertise and that of 20 other contributors, have indeed met this challenge amicably and put together a clinically useful and practical guide that will meet the needs of both the general ophthalmologist dealing with the occasional patient, and the subspecialist providing a specialist service for patients with cicatrising conjunctivitis. It begins with a succinct introduction to the subject, then describes several important clinical entities, and goes on to lay down a clinically useful approach that one may adopt towards evaluating, documenting, and managing these conditions and their sequelae. The synthesis of clinical aspects with pathology and basic science is maintained throughout, making it easy to understand the problem and rationalise its treatment.

The section dealing with aetiology and pathogenesis will be of interest to the researcher. The clinician may find it somewhat disjointed, with some chapters dealing exclusively with basic immunology and others attempting to describe basic immunology in the context of cicatrising diseases in general and of the conjunctiva in particular.

The layout of the book, its illustrations, and its conciseness make for easy and refreshing reading and help to rearrange one's thoughts and refocus one's approach to dealing with the problem of cicatrising conjunctivitis.

HARMINDER S DUA


Potentially there is a great need for a good book with illustrations on the subject of phototherapeutic keratectomy for corneal disorders. Much has been written on the use of excimer laser for refractive surgery but much less has been written on it for therapeutic reasons. Yet this has been an important area for laser and with many indications and has provided significant benefit for patients reducing the need for both superficial and full thickness corneal grafting.

The authors set out in this book to try to address these issues. It is made up of seven chapters. Firstly, there is an introduction to excimer laser technology, followed by case selection and surgical decision making, then they outline techniques of excimer laser with clinical results and complications. They then provide refractive and topographic complications and considerations and, finally, the last chapter deals with phototherapeutic keratectomy for complications of excimer laser refractive surgery.

When writing a book there are probably two main audiences. First of all, the book is written purely for those who have a large grasp of the subject and who are subspecialists in the area and a book in that regard would tend to be written in much more easy and a less simplistic fashion and will assume that the specialist will have an advanced understanding. Then, there is the book written for the average ophthalmologist, those who do not have this advanced or specialised knowledge or technique, but practise in the subject. This is a book clearly written for those with advanced knowledge of the subject and, while it has good intentions and the chapter headings are well chosen, it is a difficult book.
to read as it is written in a rather confused fashion and mainly with the assumption that the readers have an in-depth knowledge of the use of laser in corneal disorders. This, in my view, is a pity because this book is extremely well illustrated with superb photographs of various corneal disorders. It also has exceptional illustrations and is well referenced. It deals with the whole subject in 161 pages, which is very reasonable, and this in itself should encourage laser surgeons to buy and read it. However, the average laser surgeon will be very disappointed and, in my view, will find this book rather difficult to follow as it is poorly written in terms of simplicity. Perhaps the more advanced laser surgeon will find this book more readable and more valuable.

MICHAEL O’KEEFE


This book fills a niche in ophthalmology texts and is a welcome addition. The introductory sections describe the techniques of examination and the spectrum of normal appearances. This is well laid out and, with many of the illustrations being photographs taken through the indirect ophthalmoscope, the reader is well prepared for examining patients. The first main section is on developmental abnormalities and it is noteworthy that the author thought it appropriate that this section should occupy more than one third of the book. Many readers new to ophthalmology, from optometrists and to retinal specialists, are as a result of this type of pathology and this text explains and illustrates the problems well. The section on vitreous degeneration and its relation to retinal disease is particularly well written, alluding to the most recent concepts in the role of changes in the vitreous and their effects on the retina. The different types and extents of vitreous degeneration together with their symptoms and the implications are discussed well, as is the section on the role of trauma. In the chapter on retinal breaks the overall tenor is perfectly sound but I would perhaps take issue with the lack of differentiation between a retinal dialysis and a giant retinal tear since the vitreous structure and its relation to retinal dialysis and a giant retinal tear is dealt under the heading “different types and extents”. As is the phenomenon “heterochromatic dimness matching phenomenon” is dealt under the heading “blind registration” in my view.

Overall, this is a well worthwhile book which would be of benefit to ophthalmologists and optometrists, and particularly those in training, with particular reference being an excellent guide to further reading.

TOM BARRIE


This book is aimed at the ophthalmologist, orthoptist, or optometrist, especially in their student or trainee days. It has an unaccustomed layout: each chapter is divided into (approximately) page sized chunks, with each page headed with the answer to which of the five statements about “topic X” is/are correct. There are then a few paragraphs summarising the topic, and at the bottom of the page are listed the answers as to whether the statements were true or false. The technique of questioning promises well as a learning tool, providing the well known pitfalls can be avoided: the statements must be well chosen to tap into the essentials of the subject rather than irrelevant trivia (measuring the critical angle of urine is a little obscure), ludicrous false statements must be avoided (“heterochromatic dimness matching phenomenon” is unlikely), the answers should actually be found by careful reading of the text (rather than picking up by intuition) all the answers must be correct. In general, the authors achieve this aim: there are a few notable exceptions, such as keratocous being given as an example of index myopia. There are a few other occasions where the text itself contains mistakes: prismatic displacement is said to be greater for an object close to the lens. Any mathematical formulas relevant to the techniques and rationale of surgery are some-what obscure (for example, it was surprising to see u and v for object and image distance, rather than l and l’). None the less, the format works particularly well in a more applied topic: the discussion on aphakia and image characteristics, for example. There is a good book to read through before going into an exam, being a general refresher across a wide and varied syllabus. But to select specific topics and study them in depth, an alternative source will be needed.

CHRISTINE DICKINSON


This text has a significant span of excellent contributors who bring a substantial amount of experience to this textbook, then encompass all the relevant specialties one could expect in oculoplastic surgery and orbital surgery.

Despite the array of talent and the glowing foreword from Richard Gregory, there appears to have been a distinct budget limitation on the production of this text. Therefore, the goals of the book which were to provide a guide that will be useful to students, residents, and practising physicians, only perhaps meets the criteria for the first two groups. It does seem to give an overview that is credible but, at times, appears to be more than a marketing advertisement for the company Coherent Medical who have supplied many of the figures within the text, particularly technical specifications. This support from Coherent Medical is acknowledged in the text but, by definition, detracts from the independence of the overall production. Where there has been finance for technical details the budget appears to have varied quite significantly throughout the textbook on clinical matters. The first three chapters are relatively well illustrated with the exception of the final illustrations in chapter 2 which come as a surprise considering the expressed intent for quality. Chapter 3 is excellent with colour histology slides and complimentary line diagrams that illustrate every point made in the text. The remaining chapters fluctuate in their intensity but are consistent in their brevity. Every point illustrated in colour emphasises the loss when black and white or line diagrams are used elsewhere in the text.

The brevity of some of the surgical descriptions for either incisional surgery or resurfacing would, I think, have been complemented by more illustrations. However, only line diagrams of some of the surgical theory are evident.

The benefit to the profession or any interested party will eventually be dictated by the price. The main author has compiled a fairly concise review of the scope of laser surgery and the majority of the theory applicable to this modality. Therefore, all the facts are present and the chapters are well referenced.

The book is heavily subsidised by Coherent Medical and therefore illustrations continually remind us of this fact. The student and the resident are allowed a brief overview of the practising position but may wish for more detailed theory and instruction from other texts.

EWN G KEMP
NOTICES

Ageing and the eye
The latest issue of Community Eye Health (no 29) discusses ageing and the eye. Included are papers on ageing and the eye from a global perspective; epidemiology; delivery of eye care to the elderly; and age related macular disease. For further information please contact Community Eye Health, International Centre for Eye Health, Institute of Ophthalmology, 11–43 Bath Street, London EC1V 9EL. (Tel: (+44) 171 608 6908/6910/6923; fax: (+44) 171 250 3207; email: eyeresource@ucl.ac.uk) Annual subscription £25. Free to workers in developing countries.

Residents’ Foreign Exchange Programme
Any resident interested in spending a period of up to one month in departments of ophthalmology in the Netherlands, Finland, Ireland, Germany, Denmark, France, Austria, or Portugal should apply to: Mr Robert Acheson, Secretary of the Foreign Exchange Committee, European Board of Ophthalmology, Institute of Ophthalmology, University College Dublin, 60 Eccles Street, Dublin 7, Ireland.

British Ophthalmic Photographic Association
The British Ophthalmic Photographic Association (BOPA) will hold a workshop entitled “The other side of the chin rest” on 10 July 1999 at the Southampton Eye Unit. Topics include: consent; allergies and complications; living with visual impairment; and procedures. Cost £20. Further details: Tim Mole (tel: 01703 798747).

Vision ’99: International Conference on Low Vision and Vision Rehabilitation
The International Conference on Low Vision and Vision Rehabilitation will be held on 12–16 July 1999 at the Waldorf-Astoria Hotel, New York City, New York. Further details: Lighthouse International, 111 East 59th Street, New York, NY 10022-1202, USA (tel: (212) 821-9482; fax: (212) 821-9705; email: vision 99@lighthouse.org).

4th Meeting of the European Neuro-Ophthalmology Society
The 4th meeting of the European Neuro-Ophthalmology Society will be held on 29 August–2 September 1999 in Jerusalem, Israel. Further details: Secretariat, 4th Meeting of the European Neuro-Ophthalmology Society, PO Box 50006, Tel Aviv, 61500, Israel (tel: 972-3-514000; fax: 972-3-5175674/972-3-5140077; email: Eunos99@kenes.com).

International Agency for the Prevention of Blindness
The sixth general assembly of the International Agency for the Prevention of Blindness will be held on 5–6 September 1999 at the Conference Centre, Beijing Friendship Hotel, Beijing, People’s Republic of China. The theme is “The right to sight”. Further details: IAPB Secretariat, LV Prasad Eye Institute, LV Prasad Marg, Banjara Hills, Hyderabad 500 034, India (tel: 091-40-215389; fax: 091-40-248271; email: IAPB@lvpeye.stph.net).

Ophthalmological Clinic, University of Creteil
An international symposium on the macula will be held on 1–2 October 1999 at the Ophthalmological Clinic, University of Creteil. Further details: Professor G Soubrane, Chef de Service, Clinique Ophthalmologique Universitaire de Creteil, Centre Hospitalier Intercommunal, 40 Avenue de Verdun, 94010 Creteil, France (fax: 01 45 17 52 27).

Jules François Prize
The 2000 Jules François Prize of $100 000 for scientific research in ophthalmology will be awarded to a young scientist who has made an important contribution to ophthalmology. All topics in the field of fundamental and/or clinical research in ophthalmology will be considered. The application should be sent jointly with a curriculum vitae, the list of all publications, and three copies of the candidate’s 10 most relevant publications to Jules François Foundation Secretary, Professor Dr M Hanssens, Dienst Oogheelkunde, de Pintelaan 185, B-9000 Gent, Belgium. Deadline for applications 31 December 1999.

XXXIV Nordic Congress of Ophthalmology
The XXXIV Nordic Congress of Ophthalmology will be held in Reykjavik, Iceland, 18–21 June 2000. This meeting celebrates the 100 year anniversary of the Nordic Ophthalmology Conference. Further details: Iceland Incentives Inc, Hamraborg 1–3, Is-Kopavogur, Iceland (tel: +354 554 1400; fax: +354 554 1472; email: incentiv@itn.is).

DR-2000, International Forum on Diabetic Retinopathy
The International Forum on Diabetic Retinopathy will take place on 7–9 September 2000 at the Palazzo Reale, Naples, Italy. Further details: Francesco Bandello, Congress Secretariat, MGIR Congressi, Via Servio Tullio, 4, 20123 Milano, Italy (tel: 39 02 430071; fax: 39 02 48008471; email: dr2000@rmsg.it).

12th Afro-Asian Congress of Ophthalmology
The 12th Afro-Asian Congress of Ophthalmology (Official Congress for the Afro-Asian Council of Ophthalmology) will be held on 11–13 November 2000 in Guangzhou (Canton), China. The theme is “Advances of ophthalmology and the 21st century”. Further details: Professor Lezheng Wu, Zhongshan Eye Center, SUMS, New Building, Room 919, 54 Xianlie Nan Road, Guangzhou 510060, PR China (tel: +86-20-8760 2402; fax: +86-20-8777 3370; email: lwuicv@gzsums.edu.cn).