

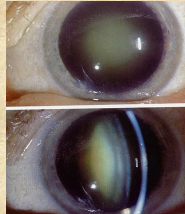
The Elderly Eye

1. Cataracts
2. Age Related Macular Degeneration (AMD)
3. Diabetes
4. Glaucoma

Nicholas Lee

Consultant Ophthalmologist

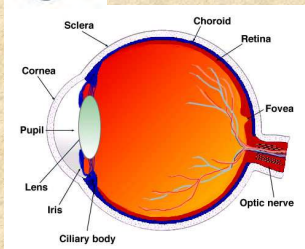
Lead clinician The Hillingdon Hospital/
Mount Vernon Hospital
The Western Eye Hospital



Consultant Ophthalmology
6 Consultants
Mount Vernon Treatment Centre

- Age related macular degeneration team
 - **Mr. Lee**
 - Injection team Lead by Mr. Patterson
 - Pardip Grewal – Co-ordinator
 - Oculo-Plastics – **Miss Rajni Jain** – Mount Vernon Hospital
 - Glaucoma – **Prof Bloom**
 - General Ophthalmology - **Miss Siobhan Wren**

Macular Degeneration Where is the Macular?



The Macula

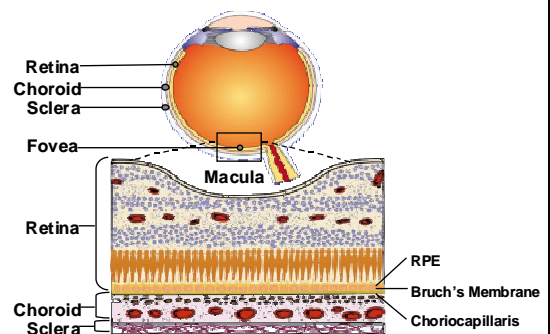
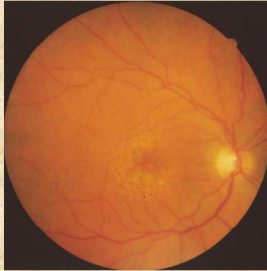


Figure courtesy of Novartis.

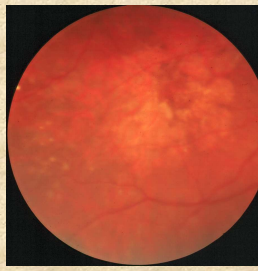
AMD Dry and Wet



Drusen



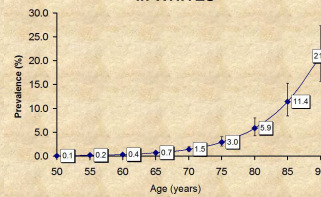
Dry AMD



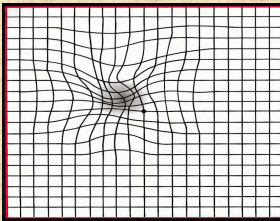
Macular degeneration 3000 patients / week 3 Million affected in UK

1/4 Wet AMD
End stage

Pooled prevalence of late AMD by age
in WHITES



Visual Perception AMD Patient



Age-related Macular Degeneration - Who is at risk ?

- Increasing Age >55 - 80's esp Wet AMD
- Heredity - Genetic
- Poor diet and nutrition
- Positive smoking history
- History of prolonged exposure to intense light
- Gender – female sex
- Race – white people with blue coloured iris
- Raised blood pressure - Hypertension
- Raised cholesterol





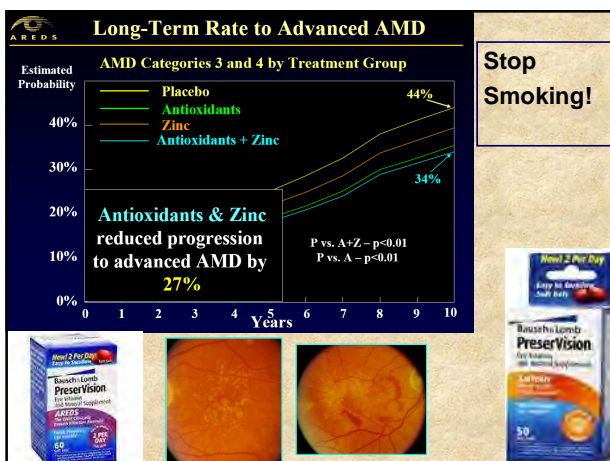
Macular Degeneration Developments

- Early AMD - Antioxidant/Zinc Story
- Large Drusen - Sub threshold Laser
- Argon/Diode
- Wet AMD - Anti-VEGF (Lucentis /Avastin)
- Photodynamic Therapy
- Argon Laser Traditional treatment
- Surgery / VIP
- Untreatable - Blind Registration
- Visual rehabilitation

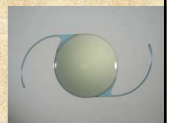
Nutrition and AMD



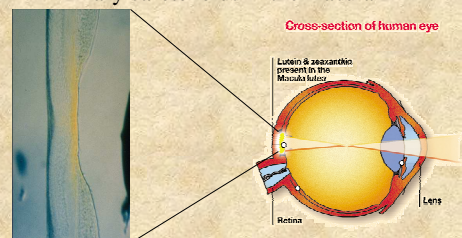
- Basic laboratory and clinical research suggest that nutritional factors may be associated with AMD
- Animals, including primates, that are deprived of nutrients with antioxidant potential are more prone than those not deprived of such nutrients, to develop retinal degeneration and this effect is enhanced by bright light
- Animals given nutrients that have antioxidant potential are less likely to demonstrate retinal degeneration
- Clinical studies conducted in human subjects indicate that certain dietary components could help maintain good ocular health and also retard progression of Age related macular degeneration
- Which antioxidant nutrients are important?



Lutein in the Eye



- Lutein & zeaxanthin
- Primary carotenoids in the macula



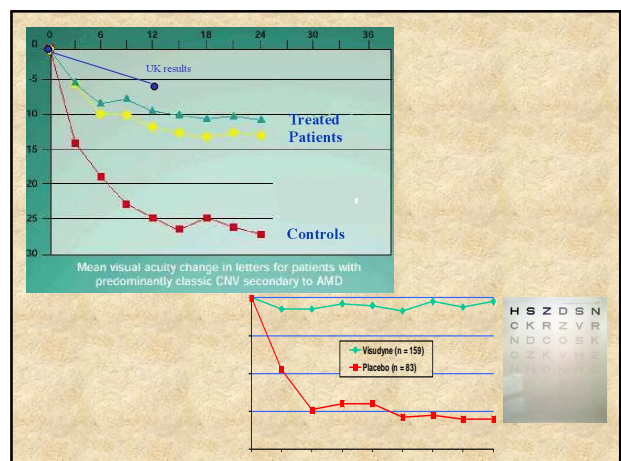
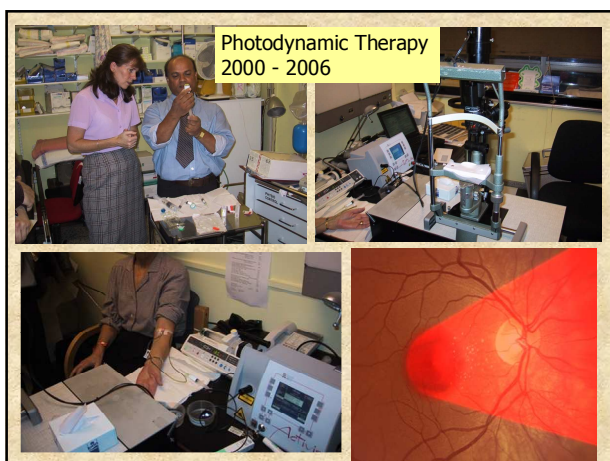
Photomicrograph courtesy of Dr. D.M. Snodderly.

Omega 3 Fish oils

- Fatty acids having anti-inflammatory action
- Anti-Angiogenic
- Reduced risk of AMD in people who have diets rich in Omega 3
- Mackerel, sardines, Anchovies and Tuna
- 1000mg Fish Oils – Supermarket
- Flaxseed oil for Vegetarians
- Balance Omega 6 and 3 – Use Cooking oil rich in Omega 3 eg Walnut oil.

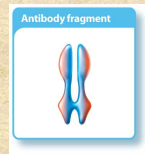
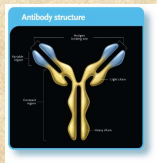
AREDS II study 2013 Results

- **Retinal Photoreceptor Protection**
– Zinc, VitC, VitE, Vit A
- **OMEGA 3 Fish oils – Anti-Inflammatory**
- **Lutein – Natural sunglasses**
- AREDS II 2013



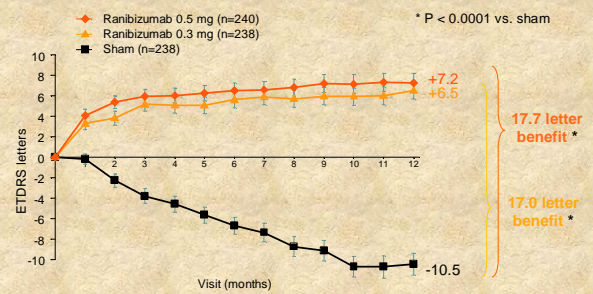
New Wonder Drugs Anti-Vegf Agents – 06/07/08

- Macugen – Approved April 2006
- Lucentis - August 08/ FDA Approved, EU Feb 07
- Avastin - US Off Label use / Italy approved
- VEGF-Traps etc .. 2010 ++

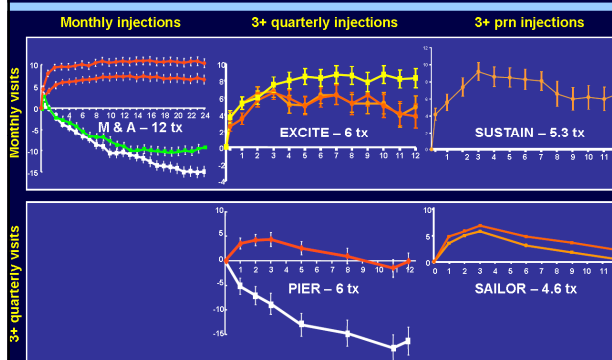


MARINA Study (Lucentis, Occults Vs Sham)

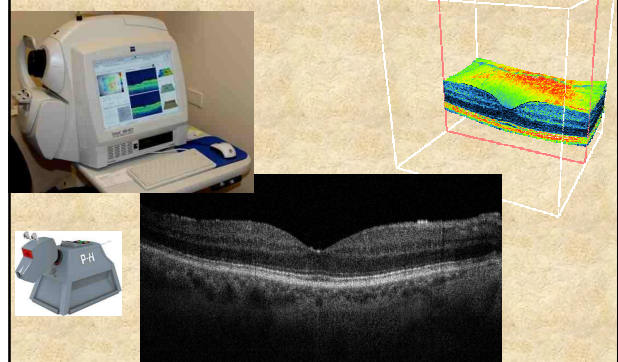
Mean Change in Visual Acuity Over Time



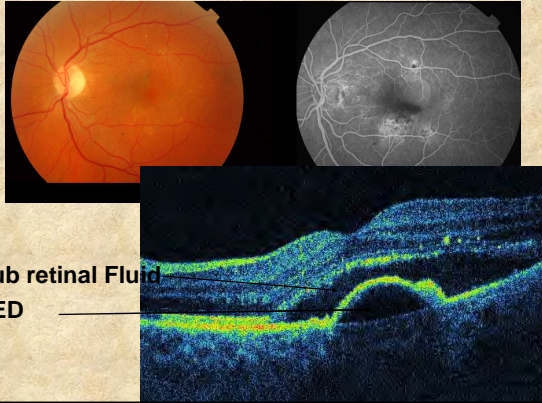
Comparison of BCVA outcomes across all Lucentis trials



Optical Coherence Tomography (OCT) -K9

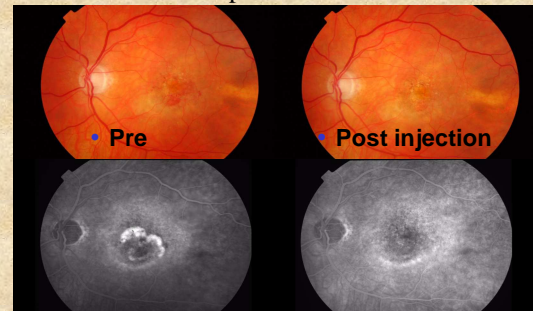


What does Wet Amd Look like?



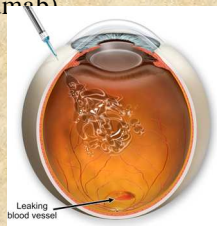
- Sub retinal Fluid
- PED

Wet Age AMD Cured!! Vision improved 5 lines1!!

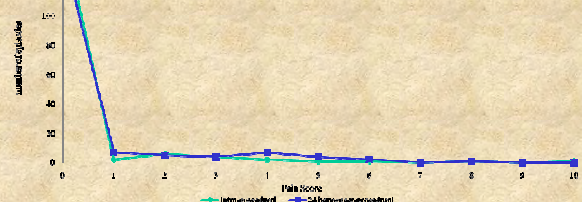


Treatment with Intravitreal Anti-VEGF Wonder Drugs! Avastin (Bevacizumab) Lucentis (Ranibizumab)

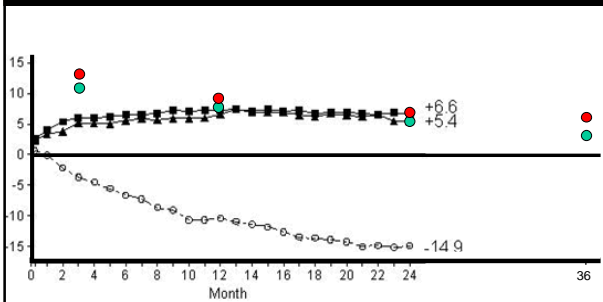
- 3 Injections into the vitreous
 - On month apart
- Review with
 - Vision
 - Optical Coherence Tomography
 - Fundus fluorescein angiography
- Retreat as needed
- Review/Treatment up to 2 years



150 Patient Audit of Intravitreal injections IVT Pain Scores Not Painful!!!



Avastin / Lucentis 3 strikes results: Excluding non-treatment naive



New AMD therapies being investigated 650 Trials!!

- Complement cascade inhibition
 - POT4
 - (C3 binder)
 - ARC1905 (Archemix)
 - C5a receptor antagonist
 - Eculizumab (C5a Ab)
- Normal complement factor H
- nAChR antagonist
- Nuclear factor kappa B inhibition
- Integrin inhibition
- PDGF-B inhibition
- Polyamine analogues- CGC11047
- Mecamylamine
- OT-551 eyedrops
- Hypoxia-inducible gene RTP801 inhibition
- Targegene 100801
- Infliximab, Sirolimus, Daclizumab
- adPEDF
- Tubulin inhibition (Zybestat)

Rapid Access Forms < 2weeks

WET AMD RAPID ACCESS REFERRAL FORM FOR FFA

PATIENT DETAILS

NAME: _____ DOB: _____ HOSPITAL NO: _____ (if known)

ADDRESS: _____

CONTACT TEL NOS: _____

GP NAME: _____ GP SURGERY: _____

OPTOMETRIST DETAILS (please print, do not use a stamp)

NAME: _____ COMPANY: _____

GOC NO: _____ ADDRESS: _____

TEL: _____ FAX: _____

AFFECTED EYE: RIGHT LEFT

PAST HISTORY IN EITHER EYE

PREVIOUS AMD RIGHT LEFT

MYOPIC RIGHT LEFT

OTHER: _____

Referral Guidelines

PRESENTING SYMPTOMS IN AFFECTED EYE (one answer must be 'yes')

Less than 3 month history of:

1. Visual loss YES ☐ NO ☐

2. Spontaneously reported distortion YES ☐ NO ☐

3. Recent missing/interfering for normal vision YES ☐ NO ☐

FINDINGS Corrected VA must be 6/60 or better in affected eye

1. Distance VA RIGHT ☐ LEFT ☐

2. Near VA RIGHT ☐ LEFT ☐

3. Macular drusen (either eye) RIGHT ☐ LEFT ☐

In the affected eye ONLY presence of:

4. Macular Haemorrhage YES ☐ NO ☐

5. Subretinal fluid YES ☐ NO ☐

6. Exudate YES ☐ NO ☐

Wonder Drugs! Lucentis /Avastin/Macugen

- Anti-VEGF Agents Really effective in
 - Wet AMD
 - * ALL Types of WET AMD
 - * 95% stabilised
 - Diabetic macular Oedema
 - Proliferative diabetic retinopathy
 - Cystoid Macular Oedema
 - Vein occlusions esp Rubeotic irises



- AMD NICE Approved
- Up to 50 injections/wk
- No 1 Drug in The Hillingdon Hospital !

New Treatments in the News!

- Kentucky Mice
- Radiotherapy Treatments
 - Merlot Trial – EpiRad – Kings College
 - ORAYA – Radiation via Slit lamp new trial
 - Brazil Trial on Brachytherapy

