A “yellow card” reporting system for sight loss in giant cell arteritis in the East of England

Introduction:
Giant cell arteries (GCA) is a large vessel vasculitis common in older people and virtually unseen in people under 50(1). In the UK, its age corrected incidence is 2.2/10,000 patient years(2). It is recognised that many patients present already with ischaemic complications. Between 15-25% of patients in most reported cohorts present with visual complications(3–8). This is probably because of delayed presentation and recognition, although a phenomenon of occult GCA presenting with blindness is described.

Sight loss in the elderly is associated with considerable morbidity. We have locally discovered that EQ5D scores differ between patients suffering visual loss and those without by 0.2. We have also found implementation of a fast track pathway for the assessment of suspected GCA appears to reduce the incidence of blindness with associated cost savings(9).

We believe there is scope for implementing a fast track pathway nationwide. In order to guide health strategists and further research, accurate information regarding the incidence of sight loss is required. In the UK there is no formal way of recording visual impairment due to GCA. We would estimate >1000 patients presenting with sight loss in the UK per year, of which >100 would be expected to have binocular sight loss, given the previously demonstrated incidence rate and the current UK population. However analysis of certificates of visual impairment over a three year period between 2008 and 2011 revealed only 46 cases. This is likely due to underreporting since CVI forms do not include GCA explicitly as a category(10).

Aims of this protocol:

To estimate the incidence of visual complications in GCA within the catchment areas of the multiple sites participating in this study

To estimate the incidence of GCA overall at these sites

To characterise patients presenting with GCA related sight loss at these sites

Study design:
This will be an observational study of new cases of visual loss attributable to GCA. In order to correctly estimate the incidence of visual loss in the context of GCA, information will be collected by participating ophthalmologists and rheumatologists on all patients with new or relapsing GCA with or without visual complications.

A brief questionnaire will then be forwarded to the reporting clinicians to collect details of the patient's demographics, index of deprivation score, comorbidities, medications, presenting visual findings, method of confirmation of GCA diagnosis and initial response to prednisolone. We expect this information will be obtained from routine medical records and do not envisage any further interviews as part of the study.
Inclusion criteria:

Sight loss:
Symptomatic loss of acuity or field of vision, or diplopia, ascribed to ischaemic complications of active giant cell arteritis, as diagnosed by an ophthalmologist.

No Sight loss:
Patients presenting with signs and symptoms fulfilling 3/5 of the 1990 ACR criteria for classification of GCA(11), or fulfilling 2/5 criteria along with positive imaging (PET-CT or vascular ultrasound) substituting for biopsy. Patients with transient visual symptoms will be considered to have not experienced sight loss for the purpose of inclusion.

Exclusion criteria:

None

Study duration:
1 year, projected start date 8/12/14

Expected sample size:
GCA with sight loss: 50 (5-7 per centre – based on numbers presenting to Southend prior to institution of fast-track pathway. 7-10 centres projected to participate)

GCA without sight loss: 250 (About 20% of GCA patients present with sight loss)

A sample size calculation shows that the percentage incidence can be estimated with a half-length for the 95% confidence interval of under five percentage points if this number of patients are recruited.

Methodology:
Participating centres nominate a contributing ophthalmologist and rheumatologist who will maintain a local register of reported cases. Standard clinical care includes multidisciplinary liaison.

When a patient with definite visual complications of GCA presents to an ophthalmologist, an initial reporting “card” will be completed electronically and either posted or emailed to the investigators.

To allow estimation of the incidence of sight loss in GCA and assess the influence of risk factors, patients presenting with a definite diagnosis of GCA evidenced by fulfilment of the established ACR
clinical criteria, with imaging by PET/CT or ultrasound being a possible substitute for biopsy, will be recruited from general rheumatology clinics in a similar fashion. An abridged version of the questionnaire will be returned to reporters for completion.

The diagnosis of GCA may not be made on the patient’s first encounter and an initial report can be made at any point 3 months after diagnosis.

Initial reports will identify cases by age at presentation, sex, date of presentation and diagnosis. Cases will then be assigned a centre/case ID by the investigating centre, which will be communicated back to the reporting centre. A request for more detailed information using a standard questionnaire will be sent to local co-investigators for completion before being returned.

To ensure all potential cases are recruited, participating centres will be encouraged to consult their pathology databases for positive biopsy reports to identify missed cases.

A bimonthly report will be provided to centres for feedback. This also gives an opportunity for cases to be reviewed for accuracy and a further safety net for missed cases to be recalled.

**Statistical analysis:**

Incidence of sight loss will be calculated from total numbers reported compared to the catchment population covered and the number of incident GCA cases identified. The primary statistical analysis will be the direct estimation of the percentage incidence, and the 95% confidence limits will be obtained using Wilson’s method.

As part of the secondary statistical analyses the percentage incidence of giant cell arteritis will be estimated using the same approach. Additionally the factors characterising patients presenting with sight loss in giant cell arteritis will be assessed using binary logistic multiple regression analysis.

**Ethical issues:**

A moderate amount of data will be collected concerning study participants. This is not envisaged to be any more than would be stored in normal clinical records. Data forwarded to the investigating centre will be stored on a secure password protected network with restricted access. Data will be anonymised, but a link register to patient records will be maintained by participating sites. The subjects’ address is used to obtain the index of multiple deprivation score by co-investigators at participating sites, with the score rounded to 1 decimal point to prevent identification.

Patients will be informed of the study during clinic appointments and correspondence. This will give them the option of opting out of further data collection and/or deleting existing data collected.
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**References:**