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CRC Rotation
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IRB Proposal

A. Study purpose and rationale

Vasculitis involving the central nervous system is a rare condition that can arise as a primary process (primary angiitis of the CNS) or secondary to systemic vasculitides, as well as a variety of autoimmune, infectious, neoplastic and toxic etiologies. Accurate diagnosis of this condition is vital, because mortality of untreated PACNS has been reported to be 80-90%, while cytotoxic therapy for the disease carries a significant rate of immunosuppressive complications. There has been a recent trend to diagnose patients based primarily on angiographic findings, which are normal in 40% of histologically confirmed cases. Though brain biopsy can be a risky and expensive procedure, sensitivity is estimated to be 75%. Morbidity has been reported to be about 1%, which is lower than that resulting from the recommended therapy for PACNS. The purpose of this study is to identify patient characteristics predictive of positive brain biopsy and utilize this information to propose a set of criteria for the decision to biopsy.

B. Study design and statistical analysis

Data from 100 patients who have undergone brain biopsy for possible vasculitis over the past 10 years at CUMC will be analyzed. Parameters such as age, gender, clinical presentation, laboratory values, angiography, MRI, biopsy location, treatment response, and complications from therapeutic interventions will be compared between the group of patients with negative biopsy and those with a positive biopsy. The chi squared test will be used to determine which parameters are significantly different between the two groups. Multiple logistic regression will be used to determine which parameters are predictive of positive biopsy. It is known that roughly 20% of the biopsies are positive, which translates to division of the 100 of patients into a positive group consisting of 20 patients and a negative biopsy group of 80 patients. These numbers exceed necessary power to detect a significant difference between the groups, which calls for at least 15 patients in each group. Both statistical analyses will generate information which will aid us in devising criteria to classify patients as having "low/medium/high likelihood" for histologic diagnosis of vasculitis. This will help clinicians select patients with the highest pre-test probability for a brain biopsy, therefore maximizing the usefulness of this diagnostic procedure.

C. Study procedure

The study will be a retrospective chart review.

D. Study drugs

No study drugs will be used.

E. Medical devices.

No medical devices will be used.

F. Study questionnaire.
No questionnaire will be used.

G. Study subjects

Inclusion criteria: adult patients over the past 10 years undergoing brain biopsy to evaluate a possible diagnosis of vasculitis will be included in the study.

Exclusion criteria:

- Pediatric patients (age < 18 years old)
- Attempted biopsy recovering inadequate sample to analyze (too little sample, or improperly preserved)
- Patients undergoing biopsy in whom vasculitis was not suspected

H. Recruitment of subjects

The study will be a retrospective chart review.

I. Confidentiality of study data

All study data will be de-identified and coded to maintain confidentiality of subjects.

J. Potential conflict of interest

None of the investigators in the study stand to benefit financially in any way from the results of the study.

K. Location of the study

Charts and histologic slides will be reviewed in the department of neuropathology in the P&S building on the Columbia medical campus.

L. Potential risks

Since the study is a chart review, no significant risks should take place.

M. Potential benefits

Improved diagnosis and subsequent selection of treatment for patients with PACNS are the anticipated outcomes of the study.

N. Alternative therapies.

Not applicable.

O. Compensation to subjects.

Not applicable.

P. Costs to subjects.

Not applicable.

Q. Minors as research subjects.

Not applicable.

R. Radiation or radioactive substances.

Not applicable.