Sample Research Elective Summary

This is a sample CHM Block III Research Elective Summary Document to use as a guide. This has been adapted from a previous Research Elective Summary turned in by a former CHM student.

Instructions: You may use the Background & Significance and Study Objectives from your Research Elective Application in the Summary, with updates and edits as needed. Please finish remainder of the Summary in your own words, using the below example as a guide. Addition of Abstracts, figures, tables and other elements are encouraged and would enhance your summary. Note that an abstract by itself is not acceptable as a final research summary.

Summary of Research Elective
[Student Name]
[Dates of Elective]
[CHM Campus]

Background and significance:

Cerebrovascular accidents or stroke is the leading cause of long-term disability and the third most common cause of mortality in the United States [1,2]. Through large randomized control trials, benefit was shown to engage in carotidendarterectomy for symptomatic patients with severe stenosis (≥70%) [2,3]. However, the optimal treatment strategy in symptomatic patients with mild or moderate (30%–70%) carotid stenosis or in asymptomatic patients remains unclear [4]. With the advent of vessel wall imaging for the *in vivo* evaluation of atherosclerotic disease, particularly carotid atherosclerotic disease, focus has shifted toward the preoperative evaluation of plaque composition that may identify unstable lesions [5-9]. Recent research has been conducted to identify carotid plaque composition, both histologically and radiographically, to correlate carotid plaque characteristics to both asymptomatic and symptomatic patients. In a recent study examining patients with identifiable carotid plaques secondary to MR imaging techniques, it was found that patients with mild or moderate carotid stenosis were symptomatic with the presence of a thin/ruptured fibrous cap and lipid-rich necrotic core; and a marginal association was discovered between these patients and the presence of carotid plaque hemorrhage. Furthermore, it has been found that in patients with severe stenosis, only the angiographic presence of ulceration was associated with symptoms [4].

With the advent of statin drug therapy, reductions of serum lipid levels have been achieved and arterial plaque characteristics have been altered. In one study, the use of both low- and high-dose rosuvastatin was effective in reducing low-density lipoprotein cholesterol and was associated with a reduction in the percent of lipid rich necrotic core; however the overall plaque burden remained unchanged over the course of 2 years of treatment [10]. In addition, another study found early intervention with statin therapy effectively caused plaque reductions of the aorta and carotid arteries at a 3 month follow-up confirmed by MR imaging [11].

With identifiable plaque characteristics and the knowledge of statin therapy and its impact on carotid plaques, further research examining the natural course of plaque characteristics secondary to statin therapy is possible. Furthermore, identification of the type, dose, and

frequency of statin therapy and its correlation to carotid plaque characteristics over time could provide useful insight into non-surgical treatment options for those with both symptomatic and asymptomatic carotid plaques. This study aims to examine the interaction of statin therapy on the natural course of carotid plaque characteristics by retrospectively analyzing patient records and correlating those records with known MR carotid imaging.

Study Objectives:

1) Primary aim: To determine and correlate the response of medical lipid-targeted drug therapy, including duration, dose, and specific drug treatment, serum lipid analyses, to known carotid plaque characteristics and clinical outcomes of MR imaged subjects.
2) Secondary aims: To identify and examine other medical treatments, routine medical measurements, co-existing chronic illnesses, any serum and urinalysis results, and any other medical and or surgical interventions that occurred with the subjects. Also, to identify subjects with new Major Adverse Cardiovascular Events (MACE).

Research design and methods:

The research involves a retrospective chart review of subjects previously identified by an IRB approved research protocol outlined by Dr. [Name of Mentor]. I examined the study variables outlined in the student's role in the research as stated below. Specific inclusion and exclusion criteria were outlined in the previously approved IRB protocol. The number of subjects for analysis was determined to be approximately 140 subjects. All human subject protections followed strict IRB policies and recommendations. Data was collected using an Excel spreadsheet, which was encrypted and any potential patient identifiers were protected through the use of a Correlation Tool. Patient protected information was stored in a limited access, password-protected departmental storage drive, and accessed only while on [Name of Health System] property. Analysis of data in the future will include various categorical and numerical analyses, which will include, but is not limited to the t-test, ANOVA, chi-squared, Mann-Whitney U, and regression analysis.

Student's role in the research:

I conducted a retrospective chart review of subjects previously identified by an IRB approved research protocol outlined by Dr. [Name]. Specifically, I reviewed cases of subjects in both the [name of database], outlined by Dr. [Name], and the Michigan State University database, outlined by Dr. [Name]. Upon review of the cases, I specifically obtained dose, duration, and type of the following medication therapies: [list medications]. In addition, I also obtained demographic information and identified the subject's primary care physician. Also, I obtained other relevant information, such as educational level, exercise level, and tobacco use. Lastly, I identified new Major Adverse Events, which included [list major adverse events]. I compiled all this information into the database in Excel for further review. I obtained all the previously listed information from a total of 114 subjects.

Summary of the work completed:

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With the assistance of both Drs. [Name] and [Name], my research month was not only extremely productive, but also very educational. During my research month I was able to review the charts of approximately 114 out of the 140 subjects needed for review. While data collection is still not complete, preliminary analysis of the data looks very promising as far as assessing the interaction of [describe] and [describe] to the natural history of [disease]. Specifically, approximately 38 subjects out of the 114 analyzed were treatment naïve at the time of their [describe assessment]. However, no formal statistical analysis has been done at this time. In addition, a number of research subjects demonstrated new [symptoms] from the time of their initial assessment to present, which will aid in a very important analysis of predictable adverse events with [symptom or condition]. Specifically, approximately 43 subjects out of the 114 analyzed were shown to have new [major adverse events]. One major difficulty with this study, as with any retrospective chart review, is the absence of complete data and complete patient records. However, a solution to resolve this problem of incomplete follow-up and missing data is currently being investigated, with particular emphasis on following IRB policies and regulations. Overall, this was a very informative elective and I am particularly honored to work with both Dr. [Name] and Dr. [Name]. Moreover, I have aspirations to continue working with Dr. [Name] in order to complete and finalize this research project and hopefully submit this research to a peer-reviewed journal.

References (include 7-20 references):

1) Authors. Year. Title of article. *Name of Journal*. **Volume**: Page numbers
2) Johnson C, Thomas P, Chang Y. 2012. Heart disease and smoking. *Journal of Heart Disease and Outcomes*. **42**:129-138.
3) …
4) …
5) …