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UCSF Student Poster Examples
Perfusion and Diffusion-Weighted Imaging are Predictive of Clinical Outcomes of Primary CNS Lymphoma
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Introduction

• Primary central nervous system lymphoma (PCNSL) is an aggressive malignant, extra-nodal non-Hodgkin’s lymphoma with poor prognosis.
• The mortality of PCNSL patients receiving standard high-dose methotrexate treatment approaches 50% within two years of treatment.
• More aggressive forms of treatment involve whole brain irradiation, however this approach is known to have many deleterious effects.
• Identification of prognostic biomarkers of chemotherapeutic response would identify which patients are at risk of progression, shorter survival and should pursue more aggressive therapies earlier instead of awaiting 6-8 months to recognize failure of chemotherapy.
• At present, there are no established imaging biomarkers predictive of prognosis in PCNSL patients.
• We recently demonstrated that apparent diffusion coefficient (ADC) derived from diffusion-weighted MRI imaging at initial diagnosis is highly predictive of overall survival.
• Previous studies have demonstrated that perfusion weighted MR imaging relative cerebral blood volume (rCBV), reflects patency of tumor vasculature, which influences the delivery of chemotherapeutic agents and hence clinical outcome and survival in immunocompetent patients with PCNSL.
• We also aim to corroborate previous finding supporting ADC as a potential biomarker of survival in PCNSL patients.

Specific Aims

• The purpose of our current study was to test the hypothesis that relative cerebral blood volume (rCBV)-derived perfusion MRI reflects patency of tumor vasculature, which influences the delivery of chemotherapeutic agents and hence clinical outcome and survival in immunocompetent patients with PCNSL.
• We also aim to corroborate previous finding supporting ADC as a potential biomarker of survival in PCNSL patients.

Methods

• The study included 26 immunocompetent patients with previously untreated PCNSL who were treated uniformly with methotrexate-based chemotherapy.
• All 26 patients had high-grade B-cell lymphomas, based on surgical biopsy of contrast enhancing lesions on MRI (see flowchart).
• The preoperative MRI was used to measure tumor volume in anatomic MRI, make quantitative measurement of ADC and quantitative measurements of relative cerebral blood volume.
• Regions of interest were placed in all enhancing lesions, ADC and rCBV were measured within the areas of enhancement.

Results

• Average and minimum lesion relative cerebral blood volume (rCBV) values of enhancing areas were normalized to a 50-mm\(^2\) region of interest drawn around the contralateral normal-appearing white matter in the same trans-axial plane (ICBV, next column).
• Minimum ADC values were also measured within all the enhancing lesions. High and low ADC groups were stratified based on a previously published minimum ADC value of 384.
• High and low rCBV groups were stratified based on values determined receiver operator curve analysis.
• Three ADC-rCBV combined groups were formed, a high-high group consisting of patients that had intra-tumoral high ADC and high rCBV values, the low-low group consisting of patients that had low ADC and low rCBV intra-tumoral values and the mixed group which had mismatched measurements of either a low ADC and a high rCBV, or a high ADC and a low rCBV.
• The three groups formed were compared.

Statistical Analysis

• The Welch t-test assessed differences between the groups.
• Survival analysis at five years as well as multivariate Cox survival analysis was performed.
• Two-sided p-values were calculated for all test statistics and P < 0.05 was considered significant.
• Statistical analyses were performed using STATA Version 10 (College Station, TX).

Conclusion

• Our study suggests that rCBV derived from perfusion MRI predicts clinical outcomes (progression and survival) in patients with PCNSL undergoing methotrexate-based chemotherapy.
• We found that the lower the rCBV of the initial untreated tumor, the shorter the overall survival. We postulate that low intra-tumor rCBV suggests lower vascular density which may have impeded delivery of intravenous chemotherapy into tumors.
• Our study found ADC to be predictive of overall survival and postulate that low ADC reflects aggressive biology of PCNSL.
• We found that rCBV measurements were independent of ADC measurements. Our study suggests that the effects of these two variables are additive when used in combination to stratify patients. We surmise that these additive effects are due to the difference in physiology measured (cellularity in case of ADC, and vascularity in case of rCBV).

Acknowledgments

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Clinical and Translational Science Institute / CTSI
Bringing better health to more people more quickly!
Reduced Risk of Cerebral Palsy Among Asian Americans: A Population-based Study

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Introduction

• Cerebral palsy (CP) is a clinical syndrome of motor impairment due to a brain lesion occurring during the prenatal or perinatal period. The prevalence of CP is 2-3/1000 births1,2.

• Although obstetric and perinatal technologies have improved, the incidence of CP has slightly increased over the last 40 years. The underlying cause of CP is often unknown and currently few preventative measures exist.

• Known risk factors for CP include preterm birth, low birth weight and gestational age, lack of prenatal care, male gender, chorioamnionitis, maternal age at extremes and low maternal educational attainment.

• CP rates vary significantly among different racial and ethnic groups. Compared to white infants, blacks demonstrate an increased risk of CP which is entirely explained by their increased risk of low birth weight babies3. In contrast, Asian American infants have a 20% reduced risk of CP than whites for unclear reasons4.

• This study compares the prevalence of CP among different subgroups of Asian Americans, and seeks to determine whether differences in sociodemographic factors explain the reduced risk of CP seen among Asians.

Specific Aims

• Aim 1: Establish if all Asian subgroups based upon maternal ethnicity have a decreased risk of CP.

• Aim 2: Determine if differences in rates of birthweight, gestational age, infant sex, maternal age, education, and prenatal care explain the reduced risk of CP among Asians.

Methods

• We performed a retrospective cohort study of 6.2 million California births that were identified from the California Office of Statewide Health Planning and Development (OSHPD) hospital administrative database during the years 1991-2001.

• We identified all infants in this birth cohort who qualified for services from the California Department of Developmental Services for CP, and determined ethnicity from linked birth certificates.

• Asians were categorized into 6 groups: East Asians (Chinese, Japanese, and Koreans N=199 CP); Southeast Asians (Cambodian, Laotian, Thai, and Vietnamese N=137 CP); Pacific Islanders (Pacific Islanders, Guamanians, and Hawaiians N=20 CP); Indian (N=50 CP); Samoans (N=21 CP); Filipino (N=21 CP).

• Birth weight <1500g very low birth weight (VLBW), 1500-2499g low birth weight (LBW), 2500-4499g normal birth weight (NBW), ≥ 4500g high birth weight (HBW)

Statistical Analysis

• For comparison of proportions, a chi-square test was used. Two-sided p-values were calculated for all test statistics and p < 0.05 was considered significant. Statistical analyses were performed using STATA Version 11.1 (College Station, TX).

• We compared CP rates among different Asian subgroups and then determined whether the lower CP risk among Asians persisted after adjusting for known demographic risk factors including birth weight, gestational age, infant sex, maternal age and education, and prenatal care using multivariate logistic regression.

Results

Figure 1: Prevalence of CP among Asian and white infants born in California 1991-2001

Table 1: Demographic risks for CP among 630,378 Asian births in California 1991-2001

Table 2: Multivariate risk factors CP

Table 3: Multivariate risk factors CP

Table 4: Birth asphyxia among Asian subgroups

Results (continued)

Conclusion

• Demographic risk factors for CP among Asians include maternal age >35 years, lower maternal educational attainment, birthweight <2500g, gestational age <37 weeks, and male sex.

• After adjusting for sociodemographic factors, Indians, East Asians, and Southeast Asians continue to demonstrate a significantly decreased risk of CP, while Samoans have a significantly increased risk compared with whites.

• Future analyses will consider parental ethnic discordance, maternal delivery complications, and congenital anomalies to investigate why most Asian American populations have a decreased risk of CP, while Samoans exhibit an increased risk of CP.

References

Acknowledgements

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Clinical and Translational Science Institute / CTSI Bringing better health to more people more quickly
Incidence of and Factors associated with Benign Prostate Glands at Surgical Margins of Radical Prostatectomy Specimens

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Introduction
- Nearly 220,000 men diagnosed with prostate cancer (CaP) annually
- Radical prostatectomy, Open (ORP) or Robotic (RALRP), is the most common treatment for localized prostate cancer
- Benign glands (BGM) are benign epithelial cells which secrete prostate-specific antigen (PSA)
- Benign glands may also be present at the surgical margin. It is unknown if benign glands are generating PSA at levels sufficient to falsely categorize patients as having BCR

Objectives
- To determine the incidence of BGM
- To characterize the association between BGM and surgical technique
- To characterize the association between benign glands at the surgical margins and risk of biochemical recurrence

Methods
- Pathology Review
  - Identified RP specimens from men with clinical stage T1 or T2 prostate cancer who underwent RP after January 2004
  - Single blinded uropathologist re-reviewed slides of prostatic apex and base
  - Specimens scored based upon:
    - Presence and extent of BGM
    - Gleason patterns of tumor at the margins
    - Presence of skeletal muscle at the apex
    - BGM and/or tumor within the skeletal muscle
    - Presence of detrusor muscle at the base

Statistics
- Dichotomous outcome: presence of BGM by surgical approach
- Multivariable logistic regression analyses to determine associations between patient or disease characteristics and presence of BGM
- Cox proportional hazards regression to determine factors independently associated with BCR free survival

Results
- 936 RP specimens were reviewed, 432 were managed by ORP and 504 by RALRP
- Benign glands were found in 274 (29%) cases: 36% at the apex, 50% at the base and 14% at both
- RALRP resulted in 3-fold greater odds of benign glands at the margin (p<0.01) including significantly greater BGM extent at the base (p<0.01), compared to ORP

Clinical, pathologic and demographic characteristics of patients undergoing radical prostatectomy

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Surgery, Median (Range)</td>
<td>2000 (2000-2014)</td>
</tr>
<tr>
<td>Age (years), Mean (SD)</td>
<td>59 (7)</td>
</tr>
<tr>
<td>Castrate, Number (Percent)</td>
<td>830 (90)</td>
</tr>
<tr>
<td>PSA (ng/mL), Median (IQR)</td>
<td>5.5 (4.4-7.7)</td>
</tr>
<tr>
<td>Clinical Stage T1, Number (Percent)</td>
<td>413 (65)</td>
</tr>
<tr>
<td>Prostate volume (cc), Median (IQR)</td>
<td>25 (23-39)</td>
</tr>
<tr>
<td>Biopsy Gleason Grade, Number (Percent)</td>
<td>&lt;br&gt;2-6 491 (76)&lt;br&gt;7 130 (14)&lt;br&gt;8-10 104 (15)</td>
</tr>
<tr>
<td>PSA 10, Number (Percent)</td>
<td>43 (21-47)</td>
</tr>
<tr>
<td>PSA 8-10, Number (Percent)</td>
<td>104 (54)</td>
</tr>
<tr>
<td>PSA 10-20, Number (Percent)</td>
<td>17 (2)</td>
</tr>
<tr>
<td>PSA 20-50, Number (Percent)</td>
<td>74 (9)</td>
</tr>
<tr>
<td>PSA &gt;50, Number (Percent)</td>
<td>836 (90)</td>
</tr>
<tr>
<td>Pathologic Gleason Grade, Number (Percent)</td>
<td>&lt;br&gt;2-6 318 (14)&lt;br&gt;7 (1+4) 424 (45)&lt;br&gt;7 (4+3) 149 (16)&lt;br&gt;8-10 45 (5)</td>
</tr>
<tr>
<td>Pathologic Stage, Number (percent)</td>
<td>&lt;br&gt;T1 743 (79)&lt;br&gt;T2a 150 (16)&lt;br&gt;T2b 35 (4)</td>
</tr>
<tr>
<td>Tumor volume (cc), Median (IQR)</td>
<td>1.3 (0.5-2.8)</td>
</tr>
<tr>
<td>Positive margins, Number (percent)</td>
<td>120 (13)</td>
</tr>
</tbody>
</table>

Multivariable logistic regression analysis of benign glands at the surgical margin

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>OR</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per decade inc)</td>
<td>0.8</td>
<td>0.6-1.0</td>
<td>0.05</td>
</tr>
<tr>
<td>Castrate (yes)</td>
<td>1.6</td>
<td>0.2-3.3</td>
<td>0.09</td>
</tr>
<tr>
<td>PSA (per mg/mL inc)</td>
<td>1.0</td>
<td>1.0-1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Clinical T-Stage (v vs T2/T3)</td>
<td>0.9</td>
<td>0.6-1.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Biopsy Gleason-Grade</td>
<td>0.9</td>
<td>0.6-1.4</td>
<td>1.0</td>
</tr>
<tr>
<td>% Core positive (per 10% inc)</td>
<td>0.9</td>
<td>0.6-1.0</td>
<td>0.07</td>
</tr>
<tr>
<td>Prostate volume (per 10cc inc)</td>
<td>1.1</td>
<td>1.0-1.2</td>
<td>0.1</td>
</tr>
<tr>
<td>RALRP vs ORP</td>
<td>2.0</td>
<td>2.1-4.2</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Conclusion
- Patients undergoing RALRP were more likely to have benign glands at the surgical margin, with greater extent at the base
- Presence of benign glands was not an independent risk factor for biochemical recurrence of prostate cancer
Including unpublished Food & Drug Administration (FDA) trial data changes the results of published meta-analyses

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2The Nordic Cochrane Center, Copenhagen, Denmark
3Temple University School of Medicine, Philadelphia, Pennsylvania USA

Introduction

- Statistically significant results in support of a drug’s efficacy are more likely to be fully reported than non-significant results.
- Reporting bias has been demonstrated for entire trials as well as specific outcomes within published trial reports.
- Meta-analyses combine the results of several trials, increasing the power and precision of effect estimates; by synthesizing the available evidence, meta-analyses become an important tool for medical decision making.
- Results of meta-analyses may be biased by under-reporting of non-significant or negative results with regards to a drug’s efficacy.
- Public availability of Food and Drug Administration (FDA) reviews of drug trials make them a good source of unpublished trial data for inclusion into meta-analyses.

Methods

- Sample: We studied 24 New Molecular Entities (NME) approved by the FDA between 2001-2002 with previously identified unpublished outcome data.
- Search: We performed a systematic search of PubMed, Embase, and the Cochrane Library in November 2010 to identify relevant meta-analyses for each of the study drugs.
- Selection Criteria: Two authors independently screened search results based on pre-specified selection criteria to identify all eligible meta-analyses for each drug and selected one for re-analysis.

Inclusion Criteria
- English Language
- Same comparator as FDA
- Contains relevant outcome(s)
- Diagnosis consistent with FDA approved indication
- Search performed beyond FDA approval date

Exclusion Criteria
- Clinical guidelines
- Conference proceedings
- Non-standard meta-analytic methods

Data Extraction: Two authors independently extracted data from both the meta-analyses and the FDA reviews. All decisions regarding data extraction and analyses were concordant with the methods of the published meta-analyses.

Results

- We calculated summary statistics using RevMan 5.1.
- Each meta-analysis was re-analyzed using the same methods as in the published meta-analyses with regards to:
  - statistical method (Peto, Mantel-Haenszel),
  - analysis model (fixed vs. random effects),
  - effect measure (relative risk, odds ratio, mean difference)
- We recommend that meta-analyses of drug efficacy are

Table 1. Unpublished FDA data included in meta-analysis

<table>
<thead>
<tr>
<th>Drug</th>
<th>Number of meta-analyses</th>
<th>Exclusive Meta-Analyses</th>
<th>Unpublished Data Included</th>
<th>Exclusion Process</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Figure 1. Meta-analyses](image1)

- Number of meta-analyses/drug: Range: 1 – 8  Median: 2

Figure 2. Drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Number of meta-analyses</th>
<th>Exclusive Meta-Analyses</th>
<th>Unpublished Data Included</th>
<th>Exclusion Process</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Figure 2. Drugs](image2)

- Conclusion:
  - This preliminary analysis suggests that the inclusion of unpublished FDA trial data in meta-analyses affects their results.
  - The magnitude and direction of the change in results varies with drugs.
  - May have important implications for the risk/benefit ratio of a drug.
  - Limitations: Small sample of drugs after exclusions. Quality of unpublished FDA trials not assessed. FDA reviews did not always provide sufficient information for re-analysis.
  - Recommendations: We recommend that meta-analyses of drugs include a search of the FDA database.
  - Future Research: Future research is need to determine how the risk/benefit ratio of a drug is affected by these findings.

References


Acknowledgments

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Quality of Life in Pediatric Patients Who Underwent Colectomy for Ulcerative Colitis

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Quality of Life in Pediatric Patients Who Underwent Colectomy for Ulcerative Colitis

• Ulcerative colitis (UC) in children can have a negative impact on quality of life (QOL).
• Prior studies in adults suggest that colectomy leads to improved QOL.

AIM
To determine QOL in pediatric patients who underwent colectomy for UC.

METHODS

Subjects: 16 patients with colectomy for UC before 20 years of age between 1980 and 2005.
• 6 Male; 13 Caucasian, 3 African-American.
• 9/16 developed pouchitis.

Patients completed the validated Inflammatory Bowel Disease Questionnaire (IBDQ-32) developed by McMaster University by telephone interview.

IBDQ-32: Consisted of 4 systems:
• Bowel System: frequent stools, loose stools and abdominal pain.
• Emotional Health: irritability, anger and depression.
• Systemic System: fatigue, difficulty sleeping and maintaining weight.
• Social Function: attending social engagements, work or school.
Each question was scaled from 1 (all the time) to 7 (none of the time); possible scores were 32 to 224, higher scores indicating better QOL.

Data Analysis
Median, Interquartile Range (IQR); Mann Whitney U Rank Sum Test, p<0.05 = significant.

RESULTS

Table 1: Patient Characteristics
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Diagnosis (yrs)</td>
<td>11 (8-14)</td>
</tr>
<tr>
<td>≤12 (n)</td>
<td>9</td>
</tr>
<tr>
<td>13+ (n)</td>
<td>7</td>
</tr>
<tr>
<td>Age at Colectomy (yrs)</td>
<td>13 (10-16)</td>
</tr>
<tr>
<td>≤12 (n)</td>
<td>6</td>
</tr>
<tr>
<td>13+ (n)</td>
<td>10</td>
</tr>
<tr>
<td>Age at Survey</td>
<td>19 (17-25)</td>
</tr>
<tr>
<td>≤19 (n)</td>
<td>8</td>
</tr>
<tr>
<td>20+ (n)</td>
<td>8</td>
</tr>
<tr>
<td>Time Post-Colectomy (yrs)</td>
<td>6 (4-9)</td>
</tr>
<tr>
<td>≤19 (n)</td>
<td>14</td>
</tr>
<tr>
<td>20+ (n)</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2: QOL by Systems
<table>
<thead>
<tr>
<th>System</th>
<th>Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowel System</td>
<td>6 (4-7)</td>
</tr>
<tr>
<td>Emotional Health</td>
<td>5 (4-7)</td>
</tr>
<tr>
<td>Systemic System</td>
<td>5 (3-5)</td>
</tr>
<tr>
<td>Social Function</td>
<td>7 (4-7)</td>
</tr>
<tr>
<td>Overall QOL</td>
<td>5 (4-7)</td>
</tr>
</tbody>
</table>

Table 3: Episodes of Pouchitis by QOL Scores
<table>
<thead>
<tr>
<th>QOL Total Scores</th>
<th>Pouchitis (n=9)</th>
<th>Episodes (Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤100</td>
<td>2</td>
<td>16-30</td>
</tr>
<tr>
<td>101-199</td>
<td>2</td>
<td>0-2</td>
</tr>
<tr>
<td>≥200</td>
<td>5</td>
<td>0-3</td>
</tr>
</tbody>
</table>

Figure 1: QOL by Age at Colectomy

Figure 2: QOL by Age at Survey

CONCLUSIONS

• 6/16 patients (37.5%) had scores of 7 (maximum) across all social function questions, which was not found for any other system.
• QOL were similar for patients with pouchitis vs. no pouchitis (p>0.05).

ACKNOWLEDGEMENTS
Support in part by NIH grants DK060617 (DD, MBH) and DK08085 (JMW)
Pilot Project: Development of a Simple Electronic Reminder Adherence System (SEARS) for Highly Active Antiretroviral Therapy

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Introduction

- HAART success depends on patients being adherent to their antiretroviral regimen
- 95% adherence is the goal for treatment of HIV+ patients
- Recent trial of prophylactic antiretroviral therapy confirmed the importance of adherence with the best results (73% reduction in risk) in the group with greater than 90% adherence
- Significant resources are used to increase adherence within the HIV community
- Electronic reminder systems, using email or cell phone text messages, are not widely offered to HIV patients as part of an adherence strategy
- Cell phone deployment in the United States has greater than a 90% penetration rate
- Computers are available within HIV clinics with the necessary software (e.g. Microsoft Office®) to host an electronic reminder system.

Specific Aims

- Create a Simple Electronic Adherence Reminder System (SEARS) that is both low cost and robust
- Recruit patients to use SEARS and evaluate patient satisfaction, self-reported adherence data, and clinical data for design of future studies and enhancements to the system

Methods

Inclusion:
- Over 18
- Initiated HAART
- Able to receive text or email messages
- English speaker

All participants were recruited at the UCSF Men’s and Women’s HIV clinic.

SEARS Overview

Table 1: Baseline Characteristics of SEARS Pilot study (N=17)

<table>
<thead>
<tr>
<th>Age</th>
<th>45 range 22-56</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24%</td>
</tr>
<tr>
<td>Female</td>
<td>65%</td>
</tr>
<tr>
<td>Transgender</td>
<td>12%</td>
</tr>
<tr>
<td>Number of Daily HIV Meds</td>
<td>3</td>
</tr>
<tr>
<td>Medications</td>
<td>range 1-5</td>
</tr>
<tr>
<td>Technology Use</td>
<td>Daily Email</td>
</tr>
<tr>
<td></td>
<td>Daily Text Message</td>
</tr>
<tr>
<td></td>
<td>Daily Electronic Communication (any type)</td>
</tr>
<tr>
<td></td>
<td>Considered Electronic Communication Important</td>
</tr>
</tbody>
</table>

Table 2: Changes in Self-Reported Adherence Measures (N=12)

<table>
<thead>
<tr>
<th>Result</th>
<th>Pre-Study Mean (SD)</th>
<th>Post-Study Mean (SD)</th>
<th>Change</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td>78 (24)</td>
<td>94 (6.8)</td>
<td>+15.4</td>
<td>0.007</td>
</tr>
<tr>
<td>&lt;1 week</td>
<td>6 (50%)</td>
<td>11 (92%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥1 week</td>
<td>6 (50%)</td>
<td>11 (92%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results (continued)

- The length of the study was 12 weeks
- Surveys were conducted at entry and exit including self-reported adherence using a visual analog scale (VAS)
- Viral loads and CD4 counts were collected at start and end of study

Statistical Analysis

Descriptive statistics were used for all data and paired t-tests were used for the self-reported adherence and clinical lab values.

Results (continued)

Table 3: Clinical Lab Values (N=13)

<table>
<thead>
<tr>
<th>Result</th>
<th>Pre-Study Mean (SD)</th>
<th>Post-Study Mean (SD)</th>
<th>Change</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 Count</td>
<td>333 (254)</td>
<td>376 (90)</td>
<td>+42</td>
<td>0.33</td>
</tr>
<tr>
<td>Viral Load</td>
<td>Undetectable 8 (62%)</td>
<td>9 (95%)</td>
<td>+1 (7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;2000 copies 3 (23%)</td>
<td>3 (22%)</td>
<td>+1 (7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥2000 copies 2 (15%)</td>
<td>1 (8%)</td>
<td>-1 (7%)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: Changes in Self-Reported Adherence Measures (N=12)

Figure 2: Change in CD4 Count (N=13)

Figure 3: Viral Load (N=13)

Figure 4: Measures of Patient Satisfaction (N=12)

Conclusion

- A low cost (zero incremental cost) system can be developed to send custom (time of day, text, and frequency) reminders to patients.
- Patient satisfaction with SEARS was high. Study participants were generally favorably disposed to the system and thought it was easy to use.
- There was a trend towards better adherence although the study was not powered for this outcome.

Acknowledgments

This project was supported by NIMH/NIH/UCSF-CTSI Grant Number 1U54MH087218-02 and NIH Grant R01DA036887. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH and NIMH.

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Syntactic Deficits and Their Anatomical Correlates in Primary Progressive Aphasia: Insights from the Goodglass Story Completion Task

Jessica de Leon1, Stephen M. Wilson1,2,3, Benno Gesierich1, Max Besbris1, Jennifer Ogar1, and Maria Luisa Gorno-Tempini1

1Memory and Aging Center, Department of Neurology, University of California, San Francisco
2Department of Speech, Language and Hearing Sciences, Department of Neurology, University of Arizona

Abstract

This study aimed to further characterize syntactic deficits in the three variants of primary progressive aphasia (PPA) and their anatomical correlates. Patients with Non-fluent/agrammatic aphasia (NFV) were hypothesized to perform worse on the Goodglass Story Completion Test compared to those with Semantic (SV) or Logopenic (LV) aphasia. Results indicated that NFV patients had a significantly higher rate of syntactic errors and distortions in their responses, particularly for complex structures, compared to other patient groups and controls. The performance of the NFV group was correlated with atrophy in the left inferior frontal cortex, suggesting a role for this area in syntactic production.

Introduction

Primary progressive aphasia (PPA) is a progressive neurological disorder that presents with language difficulties, primarily affecting the brain’s language centers. It is a dementia syndrome whose most prominent clinical feature is difficulty with language for two years. The three variants of PPA can have distinct speech-language characteristics and are associated with atrophy in various areas of the brain.

Table 1. The Three Variants of Primary Progressive Aphasia

<table>
<thead>
<tr>
<th>Variant</th>
<th>Speech-Language Characteristics</th>
<th>Neuroimaging Correlates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-fluent</td>
<td>Poor grammar, word-finding</td>
<td>Left inferior frontal</td>
</tr>
<tr>
<td>Semantics</td>
<td>Difficulty with word choice</td>
<td>cortex atrophy</td>
</tr>
<tr>
<td>Logopenic</td>
<td>Slow, effortful speech</td>
<td>Bilateral temporal</td>
</tr>
</tbody>
</table>

Table 2. Sample Scenarios from the Goodglass Story Completion Test

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2-Part Response</th>
<th>4-Part Response</th>
<th>Patient Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>My friend is coming over for dinner.</td>
<td>My friend comes in. I walked over to the table. The dog followed me.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A dog is laying on the floor. A cat comes along.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Attempted Items and Correct Items by Patient Group

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>MV</th>
<th>SV</th>
<th>LV</th>
<th>t/s</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFV</td>
<td>0.74</td>
<td>0.69</td>
<td>0.69</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>SV</td>
<td>0.77</td>
<td>0.63</td>
<td>0.63</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>LV</td>
<td>0.77</td>
<td>0.63</td>
<td>0.63</td>
<td>0.67</td>
<td></td>
</tr>
</tbody>
</table>

Results

- Patients attempted the intended structure 62.6% of the time. This did not differ significantly across patient groups (F(3,34) = 0.52, p = 0.6718).
- Across groups, 91.2% of these attempted intended structures were syntactically correct (though they may have contained semantic and/or phonological errors).
- Although they attempted a similar number of structures compared to other patient groups and controls, NFV patients performed worse (74.9%) than the other four groups; this difference was highly significant (F(4,41) = 5.94, p = 0.0001).
- NFV patients had a significantly higher rate of syntactic errors in their responses, regardless of whether they attempted the target structure (F(4,41) = 13.71, p < 0.0001).

Conclusions

- This study used the Goodglass Story Completion Test to probe for the range of syntactic structures that are intact or impaired in a population of patients with PPA.
- The percentage of times that patients attempted the intended structures was roughly equal across all groups, suggesting that the structure or mode of administration of the Goodglass test did not create an advantage for any one group over another.
- Compared to controls and patients with other variants of PPA, patients with NFV had a lower percentage of attempted intended structures that were syntactically correct. Their performance decreased as the complexity of the structures increased.
- When considering all responses that contained a verb phrase, regardless of whether the response was the intended structure, the NFV patients also performed worse than the other groups. Patients with NFV also had a higher number of distortions and phonological paraphasias in their responses.

Acknowledgments

This project was supported by grants HD033550, AG033756, AG021628, AG030741, AG051477, AG009974, and AG029746. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH. We thank all of the patients, caregivers and volunteers for their participation in our research.
Sensitivity and Specificity of Tests for Trachoma in the Absence of a Gold Standard

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1Department of Ophthalmology and F. I. Proctor Foundation, 2Department of Epidemiology and Biostatistics University of California, San Francisco; 3Department of Radiology and Radiological Science, Johns Hopkins University School of Medicine; 4Orbis International, Addis Ababa, Ethiopia

Purpose

- To estimate the sensitivity and specificity of commonly used tests for trachoma
- To develop a method for predicting the PCR prevalence of ocular chlamydia in a village using only clinical exam data

Background

- There is no gold standard for the diagnosis of trachoma 1
- The WHO simplified grading criteria contains grades of follicular trachoma (TF) or intense trachomatous inflammation (TI)
- DNA-based PCR has been used in research protocols, and is sometimes assumed to be a gold standard for trachoma 2
- Latent class analysis (LCA) allows characterization of tests without prior assumptions of test performance 3
- Current WHO treatment protocols use only TF village prevalence 4

Examples of follicular trachoma (TF, left) and intense trachomatous inflammation (TI, right). TF is the presence of five or more follicles, at least 0.5mm in diameter, in the upper tarsal plate. TI is inflammatory thickening of the tarsal conjunctiva that obscures at least 30% of the normal vessels.

Methods

- Clinical exam (TF/TI) and DNA-PCR were obtained in a large clinical trial in Ethiopia in 2003
- We constructed a clustered LCA model which accounted for village clustering present in our data
- The clustered LCA model allowed us to estimate sensitivity and specificity of TF, TI, and DNA-PCR in comparison with a latent gold standard.
- The latent gold standard is a composite of all available data
- We constructed linear models of TF, TI, and their interaction predicting village PCR prevalence
- We selected the optimum linear model based on the Akaike Information Criterion

Results

Table 1. Sensitivity and Specificity versus a Latent Class Gold Standard

<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity (95%) CI</th>
<th>Specificity (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF</td>
<td>87.3% (83.3 – 90.1%)</td>
<td>36.6% (23.6 – 40.3%)</td>
</tr>
<tr>
<td>TI</td>
<td>53.6% (46.1 – 88.0%)</td>
<td>88.3% (83.3 – 92.0%)</td>
</tr>
<tr>
<td>DNA-PCR</td>
<td>87.5% (79.7 – 97.2%)</td>
<td>100% (69.3 – 100%)</td>
</tr>
</tbody>
</table>

Figure 1. Village prevalence rates by test

Figure 2. Prevalence of TF, TI, and PCR at given values of the Latent Gold Standard

Results (continued)

Latent Class Analysis (LCA):

- TF was quite sensitive (87.3%) but lacked specificity (36.6%) and tended to overestimate disease prevalence (Figure 2, red)
- TI had moderate sensitivity (53.6%) and good specificity (88.3%) and tended to underestimate disease prevalence (Figure 2, blue)
- PCR was the most sensitive (87.5%) and most specific (100%) and slightly underestimated disease prevalence (Figure 2, yellow)

Linear model

\[ \text{PCR} = 0.374(TF) + 0.573(TI) \]

Preferred model for estimating PCR prevalence contains TF and TI terms

- TI term has larger coefficient than TF

Conclusion

Latent Class Analysis (LCA):

- LCA allowed estimates of sensitivity and specificity
- PCR outperformed the clinical tests
- TI, which currently has no role in WHO treatment protocols, was far more specific than TF
- Our estimates assume conditional independence of tests, which may have biased our estimates

Linear model:

- Our linear regression model suggests that TF and of TI each contribute to the estimation of trachoma prevalence

Caveat

- Both the LCA and linear regression models are based on data from, and may only apply to, high prevalence areas

Acknowledgments

This work was supported by a grant from the Doris Duke Charitable Foundation to UCSF to fund Clinical Research Fellow Craig See.

References

Introduction

- Glioblastoma multiforme (GBM) is a primary intraxial brain tumor with high morbidity and mortality.
- Its highly aggressive biology renders it a highly proliferative and invasive cancer.
- Patterns of GBM invasion and dissemination have been characterized and correlate with overall survival.
- Despite aggressive multimodality treatment strategies including surgical resection, radiation, and chemotherapy, GBM recurrence and invasion are common and deadly events.
- Epidermal growth factor module-containing mucin-like receptors (EMR) 2 and 3 are proteins that have been previously studied for their ability to mediate invasion and migration of leukocytes.
- Based on an analysis of publicly available microarray data accessible through the Cancer Genome Atlas, a government run database, we found a positive correlation between EMR2 and EMR3 RNA expression levels and overall survival.

Specific Aims

We investigated the association between EMR2 and EMR3 expression and overall survival in GBM, hypothesizing that:
1. EMR2 and EMR3 are variably expressed on primary GBM tissues and GBM cell lines at both RNA and protein levels.
2. EMR2 and EMR3 facilitate invasion and migration of GBM cells.

Methods

- Kaplan-Meier analysis of microarray data from the Cancer Genome Atlas was used to establish an association between EMR2 and EMR3 RNA levels and overall survival for GBM patients.
- RT-PCR, immunohistochemistry (IHC), and western blotting were used to establish RNA and protein levels for primary GBM tissues and 4 different GBM cell lines.
- Small interference RNA (siRNA) was utilized to knockdown EMR2 and EMR3 protein levels prior to functional experiments.
- The matrigel transwell invasion assay was utilized to determine the invasive capability of EMR2 and EMR3 knockdown GBM cells compared to those transfected with a negative, non-targeting control.
- The ATPlite chemiluminescent proliferation assay was used to determine whether EMR2 and EMR3 knockdown GBM cells grow differently than those transfected with a negative, non-targeting control.

Results

1. EMR2 and EMR3 expression are positively associated with overall survival in GBM patients.

Results (continued)

3. EMR3 is expressed at RNA and proteins levels in GBM.

Results (continued)

4. EMR2 and EMR3 knockdown decrease the invasive capability of GBM cells.

4. EMR2 and EMR3 knockdown have no effect on proliferation of GBM cells.

Conclusions

- EMR2 and EMR2 are variably expressed on primary GBM and GBM cell lines.
- Their levels are associated with overall survival in GBM patients.
- They facilitate invasion, but not proliferation, of GBM cell lines.
- This phenomenon may be partly responsible for the poor overall survival seen among patients whose tumors express higher levels of EMR2 and EMR3.

Acknowledgments

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Many thanks to: The Doris Duke Clinical Foundation, Joel Palefsky, M.D., Peter Chin-Hong, M.D., Cecily Hunter, and Courtney Crane, Ph.D.
Long-term Effects of Initiation of Hormonal Contraception on Condom Use in a Cohort of Young Women

Rachel L. Goldstein¹, Ushma D. Upadhyay PhD, MPH¹,₂, Beth A. Brown MA, MPA¹,₂, Tina R. Raine MD, MPH¹,₂
¹University of California, San Francisco School of Medicine, Department of Obstetrics, Gynecology, and Reproductive Sciences, ²Bixby Center for Global Reproductive Health

**Objectives**

- In the decade between 1996 and 2006, pregnancy rates among 15-19 year olds decreased nearly 33%, yet as of 2005, an estimated 8% of pregnancies in this age group remain unintended.
- Among adolescents and young adults, this amounts to more than 1.7 million unintended pregnancies yearly.
- At the same time, 15-24 year olds make up only 25% of the sexually active population, yet experience >50% of all new sexually transmitted infections (STIs) each year.
- Dual method use (hormonal methods, IUDs and implants plus condoms) has been promoted as an ideal way to mitigate the burden of both unintended pregnancy and STIs in teens and young adults; however, most recent national estimates indicate that only 6.3% of female teens are using dual methods.

**Methods**

- **Design:** Prospective cohort study.
- **Subjects:** 1,187 women aged 15-24 years initiating oral contraceptive pills (OCPs), the transdermal patch (Ortho Evra®), a vaginal ring (NuvaRing®) or depot-medroxyprogesterone (Depo-Provera) at public family planning clinics in Northern California. Eligibility criteria included being 15-24 years old, not married, able to read English or Spanish, not pregnant (self-report) or desiring pregnancy within the next year, and able to provide written informed consent and comply with study procedures. Women could not have previously used the method they were initiating at their baseline visit.

**Results**

- **Patterns of condom use with the initiation of hormonal methods**
- **Who is a consistent condom user?**

- Of the 1,187 women in the cohort, 1,124 women were eligible for analysis.
- The cohort was racially/ethnically diverse with 61% descr/Blng themselves as either Latina or African American. Nearly two-thirds lived in a low-income neighborhood and 57% were adolescents.
- At baseline, 36.2% of women were consistent condom users and 4.7% were dual method users.
- Consistent condom users at baseline were more likely to have had a prior pregnancy, been in a relationship of shorter duration, and have main partner with positive views of condoms (Table 1).

**Results (continued)**

- **There is a trade-off, but is there also a trade-back?**
  - After cessation of a hormonal method, condom use dropped to 2%, but remained relatively unchanged thereafter.
  - Dual method use increased to a peak of 12% at 3 months but decreased over time, largely due to discontinuation of hormonal methods with less than half of participants reporting use at 1 year.
  - Women who were only using a hormonal method at 3 months, with subsequent discontinuation of that method, were more likely to adopt condoms than use no method at all at 12 months (54% vs. 37%, p=0.001).

**Conclusions**

- Initiation of hormonal contraception negatively impacts condom use, however, the trade-off between hormonal contraception and condom use is dynamic.
- Many women appear to resume condom use as they discontinue their hormonal method.
- Given the impact of initiation of a method, as well as the significant role of the partner in condom use in this population, providers should emphasise the importance of continued condom use among women initiating hormonal contraception.

**Acknowledgments**

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Many thanks to: the Pathways to Careers in Clinical and Translational Research (PACTR) Program, Dr. Peter Dinh-Hong, Dr. Janel Palkay, Cecily Hunter, Ruby Singshore, Marlene Berns, and faculty and colleagues in the Advanced Training in Clinical Research (ATCR) Program at UCSF.
**With Pills, Patches, Rings and Shots: Who Still Uses Condoms?**

**Rachel L. Goldstein¹, Ushma D. Upadhyay PhD, MPH¹,², Beth A. Brown MA, MPAPA¹,², Tina R. Raine MD, MPH¹,²**

¹University of California, San Francisco School of Medicine, Department of Obstetrics, Gynecology, and Reproductive Sciences  
²Baby Center for Global Reproductive Health

---

### Introduction

- In the decade between 1996 and 2006, pregnancy rates among 15-19 year olds decreased nearly 39%, yet as of 2001, an estimated 82% of pregnancies in this age group remain unintended.
- Among adolescents and young adults, this amounts to more than 1.7 million unintended pregnancies yearly.
- At the same time, 15-24 year olds make up only 25% of the sexually active population; yet experience over 50% of all newly sexually transmitted infections (STIs) each year.
- Dual-method use (hormonal methods, IUDs and implants plus condom) has been promoted as an ideal way to mitigate the burden of both unintended pregnancy and STIs in teens and young adults, however, most recent national estimates indicate that only 8.3% of female teens are using dual methods.

---

### Specific Aims

- Describe the trends in condom use in women initiating hormonal contraception over time.
- Assess the predictors of dual method use in this group.

---

### Methods

- **Design:** prospective cohort study
- **Subjects:** 1,387 women aged 15-24 years initiating oral contraceptive pills (OCPs), the transdermal patch (Ortho Evra™), vaginal ring (NuvaRing™) or depot-medroxyprogesterone (DMPA) at public family planning clinics in Northern California.
- **Study measures:** Research staff collected data on sociodemographics, reproductive/sexual history and attitudes towards condom use from enrolled participants via self-administered electronic questionnaires at baseline and 3, 6, and 12 months. Analysis was limited to the subset of women who had sex in the last 30 days. Condom use was dichotomized (40% versus <40% in the last 30 days) and comparisons between consistent and inconsistent condom users at baseline were made using chi-square statistics. The primary outcome measure was dual method use at one year.

---

### Statistical Analysis

Logistic regression was used to analyze bivariate and multivariable models. Independent variables considered included those found to be associated with dual method use in prior research, potential confounders, variables informed by the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB).

1. **HBM** states that individuals weigh the costs and benefits of a health-related behavior before attempting behavior change
2. **TPB** takes into account subjective norms around the behavior based on attitudes of individuals close to the person.

---

### Results

#### Who is a consistent condom user?

- Of the 1,387 women in the cohort, 1,104 women were eligible for analysis.
- The cohort was racially/ethnically diverse with 61% describing themselves as either Latinx or African American. Nearly two-thirds lived in a low income neighborhood and 67% were adolescents.
- Of baseline, 36.2% of women were consistent condom users and 6.7% were dual method users.
- Consistent condom users at baseline were more likely to have had a prior pregnancy, been in a relationship of shorter duration, and have main partner with positive views of condoms (Table 1).

#### Patterns of condom use with the initiation of hormonal methods

- **Condom only use:**
  - Women who were consistent condom users at baseline had nearly twice the odds of being a dual method user at 12 months compared to inconsistent condom users (adjusted odds ratio (AOR)=2.0, 95% CI: 1.3-3.3, p<0.01).
  - Women who believed their main partner thought condoms were "very important" or did not know their partner’s opinion, regardless of perceived STI risk or the partner’s own views of condoms, had higher odds of dual method use at 12 months (AOR=2.8, 95% CI: 1.4-5.6, p<0.01 and AOR=1.0 95% CI: 1.3-6.6, p=0.05 respectively).

---

### Conclusion

- Initiation of hormonal contraception negatively impacts condom use, however, the trade-off between hormonal contraception and condom use is dynamic.
- Many women appear to resume condom use as they discontinue their hormonal method.
- Given the impact of initiation of a method, as well as the significant role of the partner in condom use in this population, providers should emphasize the importance of continued condom use among women initiating hormonal contraception.

---

### Acknowledgments

This project was supported by NIH/NICHD/OD UCSF-CTSI Grant Number T11 RR024126 and by the National Institute of Child Health and Human Development Grant R56 HD084540. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH.

Many thanks to: the Pathways to Careers in Clinical and Translational Research (PACCTR) Program, Dr. Peter Chin-Hong, Dr. Joel Palefsky, Cindy Hunter, Ruby Singhara, Marlene Bern, and faculty and colleagues in the Advanced Training in Clinical Research (ATCR) Program at UCSF.
ABSTRACT

Perceptions of another’s field of practice can significantly impact interprofessional collaborations. These perceptions can be influenced by a variety of sources. We asked medical students to describe their preconceptions about anesthesiology prior to their clinical clerkship.

- We assessed the: 1. Content and tone of student preconceptions about the field 2. Impact of the source of the described preconceptions

Understanding the impressions medical students have of anesthesiology may inform educators on how to best structure clinical clerkships or shadowing opportunities.

BACKGROUND

-Harboring negative views of a professional role can be a significant barrier to effective collaboration.
- Student perceptions of specialties can form early in training, and may be difficult to extinguish if unchallenged.
- Clinical clerkships allow medical students to learn about different specialties under direct mentorship concentrated and provide the most concentrated environments for perceptions to evolve.
- Anesthesiology clerkships are typically voluntary following completion of third year rotations.
- The role of the anesthesiologist may be experienced peripherally as students rotate through core rotations, such as surgery, OB/GYN, and internal medicine.

METHODS

- UCSF medical students described one preconceived notion about anesthesiology prior to their anesthesiology clerkship.
- Responses were collected from 1,091 students from 2003 – 2010.
- Students specified the source of the preconceptions starting in 2009.
- Key themes were initially identified using a general inductive approach.
- Two reviewers independently assigned a theme and tone (positive, negative, or neutral) to each preconception.
- Discrepancies in assignment were discussed and reconciled.

RESULTS

- Five main themes emerged: Task Responsibilities, Patient Interaction, Reputation, Lifestyle, and Future of the Field.
- Tone was negative for the majority of entries (55%); distribution varied by theme [Fig. 1].
- Trends over time: Preconceptions about Task Responsibilities and Patient Interaction are declining as students focus more on Lifestyle, Reputation, and the Future of the Field [Fig. 2].
- 155 medical students noted the source of their preconception [Fig. 3].

DISCUSSION

Student preconceptions of anesthesiology are largely negative. Heavily concentrated in prevalent themes regarding work responsibilities and patient contact.

Preconception source may play a pivotal role.
Direct interaction with anesthesiology faculty led to more positive preconceptions. Preconceptions influenced by non-anesthesiology faculty were typically negative. Increased opportunities to interact with anesthesiology faculty early in training may allow students to perceive the specialty more positively overall.

Preconception themes change over time.
Increased focus on lifestyle and reputation may indicate changing motivations and values among new student generations.

FUTURE STEPS

Curricular interventions may help neutralize negative perceptions:
- Targeted shadowing, preferably early, dispels inaccurate student perceptions.
- Increase opportunities for students to interact directly with anesthesiology faculty.
- Encourage anesthesiology faculty participation in preclinical lectures and training.
- Consider incorporating an anesthesiology clerkship into clinical requirements.
- Increase exposure to subspecialties of anesthesiology outside of the operating room.

REFERENCES

1. Harrington, M., Rounds, J., Gharahbaghian, L., Martin, J. (2011). Direct interaction with anesthesiology faculty to overcome the challenge of establishing rapport with patients during the fast-paced world of the operating room. Journal of the American College of Surgeons, 212(6), 946-951.
2. Harrington, M., Rounds, J., Gharahbaghian, L., Martin, J. (2011). Direct interaction with anesthesiology faculty to overcome the challenge of establishing rapport with patients during the fast-paced world of the operating room. Journal of the American College of Surgeons, 212(6), 946-951.
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Introduction

- CMV retinitis (CMVR) is the most common cause of blindness in HIV/AIDS patients.
- Anti-retroviral use has decreased CMVR prevalence in Western countries, but it remains high in Southeast Asia.
- 200,000 patients are at risk for CMVR in Thailand, but there are no large-scale screening programs for HIV-infected patients.
- We propose a new screening method using telemedicine in contrast to the gold standard indirect ophthalmoscopy examination.
- Our previous research at a tertiary care center in Chiang Mai, Thailand, demonstrated a sensitivity and specificity of 90% for remote screening of CMVR.
- We now aim to test the efficacy of telemedicine screening and to determine the prevalence of CMVR in a non-ophthalmological primary care setting.

Specific Aims

1) The prevalence of CMV retinitis in patients with a CD4 count <65 cells/μl in a primary care setting.
2) The risk factors for presence of CMV retinitis, with presence of CMV retinitis as the outcome, and various demographic and medical information as predictors.
3) The sensitivity and specificity for diagnosing CMV retinitis remotely in a primary care setting (Nakornping Hospital, Chiang Mai, Thailand).

Methods (continued)

- CMV in left optic disc and along the vessels
- Nine fields of fundus taken by trained photographer

Specific Aim 1: We will calculate the prevalence as the proportion of participants who have at least one eye affected with CMVR with exact 95% confidence intervals.

Specific Aim 2: We will calculate the risk factors for CMVR development with logistic regression.

Specific Aim 3: We will compute both sensitivity and specificity to determine the accuracy of remote grading for CMV retinitis diagnosis with 95% confidence intervals with indirect ophthalmoscopy as the gold standard.

Results (continued)

- Study still in process of enrollment.
- Remote grading of fundus photographs has yet to be completed.
- Anticipated sensitivity and specificity of remote CMVR diagnosis is 90% for both, based on pilot study at a tertiary care center.

Patient Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N = 42</th>
<th>95 % CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>38.2 years</td>
<td>35.2-41.2</td>
</tr>
<tr>
<td>Sex</td>
<td>63.4% Male</td>
<td>48.0-79.9</td>
</tr>
<tr>
<td>Median CD4</td>
<td>21 cells/μl</td>
<td>22.0-33.6</td>
</tr>
<tr>
<td>On ART</td>
<td>75.6%</td>
<td>61.9-89.3</td>
</tr>
<tr>
<td>Prior OI</td>
<td>43.9%</td>
<td>28.9-61.1</td>
</tr>
<tr>
<td>Prior STD</td>
<td>42.8%</td>
<td>28.0-59.8</td>
</tr>
</tbody>
</table>

Conclusion

- We found a lower prevalence of CMVR in a primary setting than previously reported in a tertiary care setting (35% of HIV/AIDS patients with CD4 <50) in Chiang Mai, Thailand.
- Telemedicine screening for CMVR can be performed effectively among HIV patients in a primary care setting and may prove to be helpful in locations with limited access to ophthalmologists.
- Early screening of CMVR has the potential to prevent blindness in HIV/AIDS patients.

Acknowledgments

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This publication was supported by Doris Duke Charitable Foundation. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of DDCF.
Peripheral Nerve Repair with Aligned Nanofiber Scaffolds

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Introduction

- The treatment of patients with nerve injuries is a major challenge.
- Complete nerve transactions are generally treated with end-to-end suture of the nerve stumps. However, if an entire segment of nerve is damaged, the resulting nerve gap must be bridged in order for nerve regeneration to occur.
- The gold standard for gap repair is to use nerve autograft to bridge the distance, but this carries substantial donor site morbidity.
- Artificial tubular nerve conduits are a promising alternative but outcomes remain inferior to autograft.
- The goal of this project is to test a new polylactide-caprolactone (PLCL) aligned nanofiber nerve conduit (NanoNerve, Berkeley, CA) in a rat model of segmental nerve injury. Our hypothesis is that PLCL conduit is equivalent to nerve autograft in the repair of a 1 cm sciatic nerve defect in the rat model.

Specific Aim

- In vivo testing of aligned PLCL nanofiber scaffolds in a rat sciatic nerve model of segmental nerve injury in comparison to nerve autograft (gold standard) using sciatic nerve electrophysiology, muscle weight and force, pinprick sensation, and nerve histology as measurements of the success of nerve regeneration.

Methods

- Twenty female Lewis rats were randomly assigned to receive nerve autograft or PLCL conduit (1.1 mm inner diameter, 200 um thickness, 12 mm length) (n = 10 per group).
- In all rats, a 10 mm segment of the right sciatic nerve was removed. For autograft, this segment was reverse and sutured back in place. For conduit, the gap was bridged with PLCL conduit.

Results

- All rats recovered well from surgery and gained weight.
- Sensory Endpoints: By 12 weeks, both groups had regained half of baseline pinprick sensory function (measured as number of paw withdrawals to 12 consecutive pinpricks) in operated hindlimb.

- Neuromuscular Endpoints: Nerve conduction velocity was slower in the conduit group (p<0.001) compared to nerve autograft. However, the amplitude of the compound muscle action potential measured in the gastrocnemius muscle and the maximum isometric tetanic force of the gastrocnemius muscle was equivalent between groups, as was the wet mass of the gastrocnemius muscle.

Conclusion

- In a rat model of a 1 cm sciatic nerve defect, we demonstrated that nerve repair using aligned nanofiber PLCL conduits is equivalent to nerve autograft in several measures of sensory and motor function recovery, although nerve conduction velocity and the number of regenerating axons remain lower with conduit than autograft.
- Future directions include delivery of neurotrophic growth factors on the surface of the conduit or within a hydrogel matrix placed inside of the conduit to further improve nerve regeneration, as well as testing of the conduit for repair of longer nerve gaps in larger animal models prior to human clinical studies.

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Pregnant Women’s Perceptions and Experiences of HIV Stigma in Rural Kenya

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Introduction

• 33 million people around the world are living with HIV/AIDS, 22 million in sub-Saharan Africa. In this region, women make up 60% of people living with HIV/AIDS (PLHAs).
• Antiretroviral therapy helps people live longer and healthier lives, and significantly reduces the risk of mother-to-child transmission.
• However, HIV-related stigma is still a problem. PLHAs have experienced emotional, physical, and structural abuse. Stigma can be a barrier for HIV testing and treatment.
• Women may be disproportionately affected by stigma because of their social status. Women who fear stigma may choose not to access important health care services, and pregnant women may not access perinatal care.

Objective

To examine sociodemographic predictors of anticipated, perceived, and experienced stigma among pregnant women attending antenatal care clinics in rural Kenya.

This information can help health care workers identify women who are most at risk of experiencing stigma, and provide more appropriate counseling and services. Ultimately, this may improve testing and treatment, and the health of women and their children.

Methods

• This is a secondary analysis of a prospective cohort study, “The Effects of HIV/AIDS Stigma on Use of 5y, and by Pregnant Women in Kenya,” conducted in the context of the UCSF/Kenya Medical Research Institute Family AIDS Care and Education Services (PACES) project.
• 1,777 women who did not know their HIV status were interviewed.
• Women who tested HIV-positive, and a random sample of those who tested negative or refused testing, were selected for follow-up; 452 had a postpartum interview (157 HIV+, 168 HIV-, 107 unknown status).
• HIV knowledge: 10 questions (e.g. “Do you think a healthy-looking person can be infected with HIV, the disease that causes AIDS?” “Can the HIV virus be transmitted from mother to child during delivery?”)
• Anticipated stigma: the anticipation that one will experience stigma if one tested HIV-positive and one’s HIV-positive status is disclosed to others.
• Perceived stigma: the woman’s negative attitudes (“PLHA should be ashamed”), and her perceptions of discrimination that they experience (“PLHA in this community face neglect from their family”).
• Experienced stigma: how often various stigmatizing events happened to the woman in the past three months because of her HIV-positive status (e.g. “Someone insulted me,” “I felt completely worthless”).

Statistical Analysis

• Variables were selected for the multivariate model based on significance in bivariate analyses (p ≤.05), potential confounders, and factors that were a priori considered to be important, based on the literature.
• Analysis of anticipated and perceived stigma included all of the women who were interviewed at baseline (n=1,777).
• Analysis of experienced stigma included only HIV-positive women who were interviewed at postpartum (n=157).

Results (continued)

Characteristics of Study Participants (n=1,777)

<table>
<thead>
<tr>
<th>Age, years, mean ± SD</th>
<th>23.6 ± 5.4 (range: 18-49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of education completed</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>82.5%</td>
</tr>
<tr>
<td>Secondary</td>
<td>17.5%</td>
</tr>
<tr>
<td>Literacy</td>
<td>Read easily</td>
</tr>
<tr>
<td>Read with difficulty</td>
<td>41%</td>
</tr>
<tr>
<td>Do not read at all</td>
<td>16%</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Single (never married)</td>
</tr>
<tr>
<td>Married</td>
<td>87.5%</td>
</tr>
<tr>
<td>Separated or Divorced</td>
<td>1.1%</td>
</tr>
<tr>
<td>Widowed</td>
<td>3.0%</td>
</tr>
<tr>
<td>Husband has other wives (yes)</td>
<td>24.7%</td>
</tr>
<tr>
<td>Work</td>
<td>Housework</td>
</tr>
<tr>
<td>Other</td>
<td>77.4%</td>
</tr>
<tr>
<td>Ownership of household goods</td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>3.6%</td>
</tr>
<tr>
<td>Radio</td>
<td>74.9%</td>
</tr>
<tr>
<td>Television</td>
<td>10.5%</td>
</tr>
<tr>
<td>Landline telephone</td>
<td>1.3%</td>
</tr>
<tr>
<td>Mobile phone</td>
<td>47.2%</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>96%</td>
</tr>
<tr>
<td>Mean pregnancies, including current</td>
<td>3.2 ± 2.0 (range: 1-16)</td>
</tr>
<tr>
<td>Mean live births</td>
<td>2.2 ± 2.0 (range: 0-15)</td>
</tr>
<tr>
<td>Anticipated any stigma</td>
<td>28.4%</td>
</tr>
<tr>
<td>From partner</td>
<td>35.3%</td>
</tr>
<tr>
<td>From family</td>
<td>35.0%</td>
</tr>
<tr>
<td>From community/others</td>
<td>59.1%</td>
</tr>
<tr>
<td>Mean Community stigma score (range: 0-5)</td>
<td>84.4 ± 38</td>
</tr>
<tr>
<td>Negative Attitudes</td>
<td>78 ± 46</td>
</tr>
<tr>
<td>Perceived Discrimination</td>
<td>88 ± 43</td>
</tr>
<tr>
<td>HIV Knowledge (mean percent correct)</td>
<td>81.6%</td>
</tr>
<tr>
<td>HIV Status</td>
<td>HIV-positive</td>
</tr>
<tr>
<td>HIV-negative</td>
<td>1,204 (67.8%)</td>
</tr>
<tr>
<td>Referral to Testing</td>
<td>99 (5.6%)</td>
</tr>
<tr>
<td>Testing Service Not Available</td>
<td>203 (11.4%)</td>
</tr>
<tr>
<td>Missing Result in Med Record</td>
<td>14 (0.8%)</td>
</tr>
</tbody>
</table>

Anticipated Stigma

• Women with significantly greater adjusted odds of anticipating stigma were 25+ years old (AOR=1.43, p<0.07), and had husbands who had other wives (AOR=1.42, p<0.06).
• Those who had lower adjusted odds had more education (AOR=0.9, p<0.06) and more HIV knowledge (AOR=0.7, p=0.03), and more HIV knowledge (beta = -1.5, p<0.001) and those with better HIV knowledge (beta = -1, p<0.001).

Perceived Discrimination

• Women’s perceptions of discrimination against PLHAs were lower among those who worked inside the home (beta = ~1.1, p<0.001) and those with better HIV knowledge (beta = -1.5, p<0.001).

Conclusions

• Levels of HIV-related stigma vary widely in this population. Education, literacy, and HIV knowledge were important predictors of anticipated stigma, negative attitudes, and perceived discrimination.
• HIV-positive women who did not know whether their partner had been tested for HIV were more likely to experience stigma than women who did not know whether their partner had been tested.
• Those who had lower scores worked inside the home (beta = -1.5, p<0.001), and had more HIV knowledge (beta = -1.5, p<0.001).

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Examining Health Equity through a Race Theory Lens
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Background
In the United States, “health disparities” discourse evolved around racial/ethnic concerns. In contrast, European nations employ the term “health equity”, emphasizing socioeconomic status.

Research Question
As health equity gains prominence in the U.S., how does this framing clarify or obscure the role of race in health disparities?

Critical Theories of Race
• Race is a fundamental axis of social relations that cannot be reduced under class, culture, or biology.
• Race, class, and gender are interlocking and mutually constituted systems of power.
• Disrupting racialization processes is a form of resistance.

Critical Discourse Analysis
• Qualitative study of the social construction of knowledge and practice through discourse.
• Emphasis on power, ideology, inequality, and social change.

Analytic Process
• Thematic coding: iterative process identifying themes in the data.
• Thematic focus: Identify abstract (general) and particular (concrete) examples of discourse themes.
  • “Abstractions” refer to high level concepts (e.g., socioeconomic status) that generalize phenomena.
  • “Particulars” refer to concrete elements of phenomena.
Both can act as discursive devices to obscure or illuminate power relations (via mechanisms, actors, responsibility) and provide pragmatic and strategic ways of discussing issues.

Data Sources
• Health equity reports & communications guides (n=8)
• Key informant interviews (n=12)

Findings (continued)

Theme 1: History
Abstract: It just is
Residential segregation into affluent, middle income and poor communities contributes to the reasons why we live can have a significant influence on how long we can expect to live.

Particular: Historicize racism

But what was missing from the equity frame...is an explicit understanding of history and redistribution. You can't help people understand it if you don't understand the history that helped create these problems.

Blacks, American Indians, Hispanic Americans, Pacific Islanders and some Asian-American groups are disproportionately represented among the more socioeconomically disadvantaged groups in the U.S. This reflects a long history of racial inequality in which race or ethnic origin was legally used to exclude individuals from employment, educational opportunities and property ownership...the legacy of segregation, together with subtle institutional forms of racial bias that limit economic and social opportunities, continues to shape living and working conditions for many people of color.

Theme 2: Agency & Responsibility
Abstract: It just is
African Americans and Hispanics/Latinos were more likely to be unemployed compared to their White counterparts...

Particular: Inequities are socially created,

[A] government agency decides that low-income housing must be built, which will house low-income African Americans and Latinos. It fails to look for locations near jobs and important infrastructure, like working schools, decent public transportation and other services....

The public housing residents are left isolated, in under-funded schools, with no transportation to job centers.

Theme 3: Privilege
Abstract: Problem of disadvantaged
Most health disparities affect groups marginalized because of socioeconomic status, race/ethnicity...

Particular: Problem of relationality between groups
Structural racism...is the normalization and legitimization of an array of dynamics–historical, cultural, institutional, and interpersonal–that routinely advantage whites while producing cumulative and chronic adverse outcomes for people of color. Structural racism lies beneath social and economic inequities that are at the root of the vast majority of health disparities.

Methodology
• Qualitative study of the social construction of knowledge and practice through discourse.
• Emphasis on power, ideology, inequality, and social change.

Findings

I. Polities of Racial Discourse
Different approaches to addressing racial concerns within health equity discourse:

Race is a dominant, though implicit, theme in the conservative framing that progressives must address...If progressives remain silent about race, they not only concede the race frame to the right: They concede all of the issues that conservatives successfully racialize.

"I was in a room recently with another researcher who feels that you need to call things by their right name and that you need to use the "R" word as in racism. It's like you sell out if you don't use it...I think that’s not wise...Politics at one level is the art of the possible and you have to work within the system we have. And within [that system]...we need to keep our eyes on the prize, the big picture, but we need to be smart about how we get there."

Findings (continued)

Theme 4: Fundamental Causes
Abstract: A variable
Most health disparities affect groups marginalized because of socioeconomic status, race/ethnicity...

Particular: A process
Health disparities are not about race or ethnicity in a cultural or biological sense; rather, they result from racism and its social and institutional manifestations.

Theme 5: Social Determinants
Abstract: General
Social, economic, and environmental conditions

Particular: Population sensitive
Criminal and juvenile justice, workforce and economic development, family support and child welfare, education, housing

Theme 6: Intersections
Abstract: Race + class, additive
[Major differences exist...particularly for communities of color and people living in poverty]

Particular: Race x class, complex intersection
"[I]t doesn't just so happen that people of color are over represented in poverty, that's because of...racism."

Theme 7: Community Participation
Abstract: Generic stakeholder

[T]his new relationship requires an ability to work with a broad sector of the community on a wide range of issues.

Particular
Groups that are the most affected by inequities must have a voice in identifying policies that will make a difference as well as in holding government accountable for implementing these policies.

Conclusion

• Abstractions and particulars shape discourse in specific ways
• Use of such discursive devices should reflect conscious considerations regarding audiences and consequences
• Attention to and integration of racial concerns within health equity discourse can interrupt the reproduction of inequities

Acknowledgments
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