PRIMARY CARE PRECONFERENCE POSTER PRESENTATIONS: PC

PC-001 ADDRESSING KOCH'S POSTULATES: THE ROLE OF HERPES SIMPLEX VIRUS IN ALZHEIMER'S DISEASE

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Background: It has been known since the early 20 the century that infectious organisms, such as the Treponemal Spirochete causing syphilis, induce Abeta plaques in the brain. Recent evidence shows similar Abeta with Borrelia Burgdorferi, the causative agent for Lyme disease. Others have proposed that the neurotropic herpes simplex virus (HSV), which infects 85% of aging Americans, is a causative agent in Alzheimer's disease (AD), yet examination of AD brains for HSV has been inconclusive. Recent in vitro evidence shows that HSV associates with APP inside cells and induces increased APP and Abeta production (Cheng...Bearer, 2011). To address Koch's 3rd postulate, that HSV causes AD pathology, we are investigating whether acute HSV brain infections in human subjects induce the production of Abeta plaques, neurofibrillary tangles, and/or neuritic plaques; the pathognomonic hallmarks of AD. **Methods:** Pathological specimens obtained from 3 diagnosed cases of HSV encephalitis (HSE) across the lifespan (subjects aged 9d, 8yr, and 76yr old) were probed by immuno-staining for Abeta, phospho-tau, neuritic plaques, and inflammation, as well as by DNA analysis for HSV type, location, viral load and host ApoE alleles. Colocalization of virus with AD pathology was determined by quadruple-color immunofluorescence imaged by deconvolution microscopy with 50 nm resolution. Subjects were genotyped for ApoE and HSV typing was performed by PCR, RFLP, and sequencing according to protocols developed in the Bearer lab (Brown, Bearer and Donohue, 2010). **Results:** We found Abeta deposition near viral particles in all subjects, including the 9d old infant and the 8y old child. HSV was also found in endothelial cells of the vasculature in all cases. In the 76y old, both viral types were present. Viral particles and plaques were not always coincident. Even in the 76y old, phospho-tau staining was rare. Distribution of plaques throughout the brain correlated with viral activity with sparing of the hippocampus, which is inconsistent with typical AD presentation. **Conclusions:** Using a novel strategy, we show that active HSV infections in the brain result in Abeta deposition. In acute stages, neurofibrillary tangles are rare, suggesting that this pathologic feature requires time or other cofactor(s) to develop. We thus satisfy Koch's 3 rd postulate: the HSV causes Abeta deposition that would in concert with other factors lead to an AD-like pathology.

PC-002 CASE MANAGEMENT FOR PATIENTS WITH DEMENTIA IN PRIMARY CARE: WHY IT DOESN'T WORK—A MIXED STUDIES SYSTEMATIC REVIEW

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Background: As the first contact of patients with cognitive deficiency happens in primary care it is important to strengthen it. Case management (CM) was designed to address it by providing a demand-directed care. However, the results of CM efficacy are varied across the studies. Recently conducted systematic reviews concluded that CM is unlikely to be cost-effective and lead to optimal use of healthcare resources. One of the causes that can hinder the efficacy of CM is the barriers to implementation. They can lead to little or no effect of the intervention (no implementation, no effect) while CM intervention can be effective. Our study hypothesis posits that the more barriers to implementation are addressed the more positive key outcomes are measured. **Methods:** A systematic mixed studies review allowed us to integrate the findings of studies (quantitative, qualitative and mixed methods) in order to evaluate the complex intervention of CM. Moreover, it is a way to answer a number of questions in the same review (e.g., identification of barriers and evaluation if they have been addressed). Literature search of publications in English or French was performed in MEDLINE, PsycInfo, EMBASE and the Cochrane library from 1995 to 2012. **Results:** Five main groups of outcomes have been identified across 28 intervention studies: clinical outcomes, service use, caregiver outcomes, satisfaction and other outcomes (e.g., dementia detection rate, medication management). From predominantly qualitative studies barriers were grouped into 2 categories: barriers to intervention (restricted inclusion criteria, CM intensity, duration of intervention, lack of training in geriatrics) and barriers to implementation (lack of CM embedding, case manager location, short engagement period, collaboration/communication issues). Duration of intervention, intensity of CM, ineffective communication and collaboration, case manager location, and training in geriatrics are addressed more frequently. Less attention has been paid to lack of CM embedding, restricted inclusion criteria of participants and, short engagement period. **Conclusions:** Matching of the non-intervention (qualitative studies) with the intervention studies (quantitative studies measuring outcomes) demonstrates that studies with more addressed barriers to implementation produce more positive outcomes. Among the barriers effective communication/collaboration and duration of intervention are the most important to be addressed to gain more positive outcomes.

PC-003 DEVELOPMENT AND VALIDATION OF A BRIEF DEMENTIA RISK ASSESSMENT TOOL FOR USE IN PRIMARY CARE

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Background: Undiagnosed dementia is common in older adults, and detection of 'any cognitive impairment' is now federally mandated as part of the Medicare Annual Wellness Visit. Yet screening all older adults for cognitive impairment may result in unacceptably high false positive rates, particularly in younger Medicare patients. The objective of our study was to develop and validate a brief Dementia Risk Assessment (DRA) tool for use in primary care to enable clinicians to identify high-risk patients who should be targeted for cognitive screening. **Methods:** The DRA was developed and validated using data from four existing cohort studies: the Cardiovascular Health Study (CHS), Framingham Heart Study (FHS), Health and Retirement Study (HRS), and Sacramento Area Latino Study on Aging (SALSA). These studies were selected because they included data on incident dementia and a broad palette of potential risk markers and together provided representation of individuals from diverse geographic and race/ethnic backgrounds. We first calculated 6-year dementia risk as a function of age and set $\geq$80 years as the age at which cognitive screening should be considered based on age alone. In participants age 65-79 years, we then performed Cox proportional hazards analyses and used an iterative process to identify a common set of dementia risk predictors. Meta-analysis was performed to develop a DRA point score based on the predictors retained in the final model. **Results:** The final DRA tool included age (1 point/year), $<$12 years education (9 points), stroke (6 points), diabetes mellitus (3 points), body mass index $<$18.5 kg/m 2 (8 points), requiring assistance with money or medications (10 points), and evidence of depression (anti-depressant use or self-reporting "everything an effort" $\geq$3 days/week, 6 points). Accuracy based on Harrell's c statistic (95% confidence interval) was CHS, 0.68 (0.65, 0.72); FHS, 0.77 (0.73, 0.82); HRS, 0.76 (0.74, 0.77); and SALSA, 0.78 (0.72, 0.83). Across all 4 studies, a point-value of $\geq$22 identified a group of 65-79 year-olds whose 6-year dementia risk was comparable to 80-84 year-olds. **Conclusions:** The DRA is a simple tool that can be used in primary care to identify older patients with an increased risk of developing dementia who should be considered for cognitive screening.