

1085-198

The Effect of Chart Review, Feedback, and a Hand-Held Management Program on Blood Pressure Control in Hypertensive Patients: The PROMPT Study

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Background: Only 30% of the hypertensive population is controlled. PROMPT (Palmbased Risk Outcomes Manager and Patient Tracker) is an NHLBI-sponsored randomized trial testing the effect of a point-of-care, hand-held computer collection and reminder system, coupled with regular feedback, on improving BP control.

Methods: 114 physicians in a primary clinic in East Harlem, New York, were randomized to one of three groups: 1) Total intervention group (TIG) received a hand-held digital assistant (PDA) programmed to prompt entry of data for BP management. They also received regular patient-specific feedback and quarterly peer-comparison of their patient's BP control. 2) Partial intervention group (PIG) physicians used paper charts only, had regular chart review by trained abstractors, and quarterly peer-comparison feedback. The control (zero) intervention group (ZIG) managed patients in the standard paper-chart fashion (i.e. no PDA and no quarterly feedback nor reminders).

Results: 3712 patients with hypertension (HTN) were followed for an average of 434±107 days from January 2001 through September 2002. The average age of the hypertensive population was 60.7±13.4, average BP was 138+/80±11. 29% were African American, 43% were Caribbean Hispanic, and 28% were either white or of unknown ethnic origin. 38% had uncomplicated HTN (HTN_Only), 31% had diabetes (HTN_DM) and 31% had target organ damage (HTN_TOD). In the sub-group of patients with HTN_Only, absolute % BP control increased significantly more (14% vs. 8%, p<0.02) in patients whose physicians were in the PIG compared to the ZIG group. In HTN_Only, there was a trend toward greater improvement in the TIG group compared to the ZIG group (10% vs. 8%, p=0.12). In the HTN_TOD and HTN_DM subgroups, there was no difference in % increase in BP control between the TIG, PIG and ZIG physician groups.

Conclusions: This study demonstrates that regular chart review by trained abstractors, coupled with peer-comparison feedback, effectively improves BP control. More study is required to determine if further BP control can be achieved through prompts and reminders provided to the physician at the point of care with a PDA.

2:15 p.m.

819-2

Endothelium Dependent Flow-Mediated Vasodilation of Systemic Arteries Is Impaired in Patients With Myocardial Virus Persistence

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Background

Endothelial dysfunction in patients with inflammatory cardiomyopathy (InfCM) has been associated with inflammatory immune responses in myocardial biopsies. In some patients, this myocardial inflammatory process is induced by myocardial virus persistence. The aim of this study is to investigate the impact of myocardial virus persistence on endothelial function in these patients.

Methods

In 124 patients with suspected cardiomyopathy, myocardial biopsies were examined for myocardial virus persistence (PCR) and myocardial inflammation (immunohistology). Endothelial function was examined by high resolution ultrasound, measuring diameter changes of the radial artery in response to reactive hyperemia (FMD), as compared to glyceroltrinitrate (GTN-MD).

Results

Mean age of the 55 male and 69 female patients was 45±13 years, left ventricular ejection fraction was 57±17%. In 73 patients, adeno-, entero-, parvo- or HHV6-virus was detected via PCR, in 51 patients, no virus was detected. FMD was significantly impaired in patients with myocardial virus persistence, as compared to controls: FMD-V 3.38±2.67%, FMD-Co 7.34±3.44% (p<0.001). In 86 patients, myocardial inflammation was detected by immunohistology (InfCM), of those, 57 had myocardial virus persistence, 29 had no virus. FMD was significantly impaired in patients with virus persistence, as compared to controls: FMD-InfCM-V 3.24±2.66%, FMD-InfCM-Co 6.07±3.00% (p<0.001). In 38 patients, immunohistology of the myocardial biopsies were normal (Co), of those, 16 had myocardial virus persistence, 22 had no virus. FMD was impaired in patients with virus persistence, as compared to controls: FMD-Co-V 3.88±2.72%, FMD-Co-Co 9.00±3.32 (p<0.001). Endothelium independent vasodilation (GTN-MD) was not affected.

Conclusions

Endothelial function is impaired in patients with myocardial virus persistence. Endothelial dysfunction can occur independently of endothelial activation or myocardial inflammation. Endothelial dysfunction is more pronounced in patients with myocardial virus persistence and myocardial inflammation.

ORAL CONTRIBUTIONS

819

Endothelial Function, Risk Factors, and Viral Infection

Monday, March 08, 2004, 2:00 p.m.-3:30 p.m.
Morial Convention Center, Room 207

2:00 p.m.

819-1

Endothelial Dysfunction in Children With Human Immunodeficiency Virus: Impact of Disease and Protease Inhibitor Therapy

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Background: Protease inhibitors (PI) have significantly modified the course of human immunodeficiency virus (HIV) infection in adults and in children leading to longer survival rates. However, compelling evidence suggests that this treatment is associated with metabolic changes and premature atherosclerosis. The effect of PIs on early markers of vascular disease has not been evaluated in children.

Methods: We studied 70 HIV positive children aged 11±0.38 years (mean±Standard Error). The children were divided into three groups: those without antiretroviral treatment (NART, N=28; 15m, 13f), those on antiretroviral treatment but PI naïve (ART, N=25; 13m, 12f) and those on PI treatment (PI, N=17; 9m, 8f). High resolution ultrasound was used to determine endothelium-dependent (flow mediated dilatation (FMD)) and endothelium-independent nitroglycerine mediated dilatation of the brachial artery. Disease severity was defined according to the Communicable Disease Centre classification.

Results: Total cholesterol was elevated in both the PI (4.72±0.27 mmol/L) and the ART groups (4.35±0.18 mmol/L) Versus NART subjects (3.85±0.13 mmol/L, p<0.01 and p<0.05 respectively), whereas viral load was greater in the NART group when compared with both the other groups (p<0.05). Communicable Disease Centre classification grade was higher in the PI group Versus ART and NART groups (p<0.001 for both). CD4 cell count, current symptoms, body mass index, triglycerides and baseline arterial diameter were similar in the three groups. FMD was significantly impaired in the PI group (5.5±0.8%) compared to the ART group (8.7±0.7%, p<0.02) and NART group (9.5±0.8%, p<0.003) whereas nitroglycerine responses were similar (p=0.195). After multivariate analysis, baseline arterial diameter, body mass index and PI treatment were the only independent predictors of FMD.

Conclusion: In HIV children treatment with PIs is associated with dyslipidemia and endothelial dysfunction. These findings suggest that PIs may be involved in the initiation of vascular injury in early life. Therefore, careful monitoring of this group of HIV children may be required to detect and prevent premature atherosclerotic disease.

2:30 p.m.

819-3

Coronary Vascular Dysfunction Is Only Partially Predicted by Traditional Cardiovascular Risk Factors in Women Undergoing Evaluation for Suspected Ischemia: Results From the National Heart, Lung, and Blood Institute WISE Study

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Background: Coronary vascular dysfunction is frequent in women with suspected ischemia with or without significant coronary atherosclerosis and is associated with recurrent symptoms and costly re-evaluations. However, the relationship between coronary vascular dysfunction and traditional cardiovascular risk factors in women with chest pain is uncertain.

Methods: As part of the NHLBI-sponsored Women's Ischemia Syndrome Evaluation (WISE), we collected risk factor data on 210 women (mean age 54.8±9.7 yrs) referred for coronary angiography to evaluate suspected ischemia. To characterize coronary vascular function, we measured coronary flow velocity reserve to both intra-coronary adenosine and acetylcholine in a vessel without angiographic atherosclerosis as interpreted by core lab.

Results: Overall, 49% of the women had no angiographic CAD, while only 20% of the women studied had angiographic CAD stenoses >50%. We found a significant association between a diminished response to adenosine and age, diabetes mellitus (DM), hypertension (HTN), dyslipidemia, family history of CAD, HDL level, and Duke Activity Status Index (DASI) score (all p<0.05). However, the best multivariable model using up to six risk factors only yielded an r² of 0.13. We also found a significant correlation between a diminished response to acetylcholine and HTN, DM, HDL level, BMI, and not smoking (all p<0.05), yet the r² was only 0.19 using the best multivariable model with up to six risk factors. Other traditional CAD risk factors did not correlate with either measure of coronary vascular dysfunction.

Conclusions: Among women with suspected ischemia, traditional risk factors for coronary atherosclerosis are associated with coronary vascular dysfunction but account for <20% of variability in flow reserve. Therefore, other, as yet unidentified, non-traditional risk factors must account for coronary vascular dysfunction.