The Effect of Chart Review, Feedback, and a Hand-Held Endothelium Dependent Flow-Mediated Vasodilation of Vascular Disease, Hypertension, and Prevention: The PROMPT Study

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Background: Only 30% of the hypertensive population is controlled. PROMPT (Palm-based 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. They also received regular patient-specific feedback and quarterly peer-comparison of their patients with other providers. 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. Monthly 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.

Endothelial Function, Risk Factors, and Viral Infection

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

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 PI on early markers of vascular disease has not been evaluated in children.

Methods: We studied 70 HIV positive children aged 11.0±3.8 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 dilation) (FMD) and endothelium-independent nitroglycerin 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 (4.2±0.27 mmol/L) and the ART groups (4.35±0.18 mmol/L) versus NART subjects (3.65±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 factors (p<0.05).

Conclusion: In HIV infected children with PI 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.