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Immunologic, Virologic and Metabolic Data from the CLARE (CORE Center Lopinavir/r (LPV/r) Antiretroviral Effectiveness) Cohort

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Abstract

Objective: Study efficacy, durability, and lipids of LPV/r regimens in an urban clinic.

Methods: From October 2002 through October 2003, HIV-positive (HIV+) patients on LPV/r enrolled in a retrospective-prospective observational cohort study. At entry (E), demographics, past ART, metabolic data, baseline (BL) and nadir CD4 were done. At E and week 4 – 12 and week 13 – 36 visits, labs and anthropometrics were done.

Results: 120 HIV+ patients on LPV/r for a median of 7 (0 – 41) months enrolled. Mean age was 44 years, 77% male, 72% AA, 19% white and 9% Hispanic, 29% HCV+ and 5% HBsAg+. At BL (start of LPV/r) 19 patients (16%) were ART-naïve; 67 patients (57%) had prior NNRTI experience; 79 patients (67%) had prior PI; 52 patients (43%) had prior 3 class experience. At BL, med. CD4 and HIV/RNA were 177/mm^3 and 4.34 log copies/mL, and at 13 – 36 weeks 278/mm^3 and 2.4 log copies/mL (p<0.005). BL/entry levels vs. weeks 13 – 36 were not statistically significant (SS) for ALT (25 vs. 27 IU/L), waist/hip ratio (0.90 vs. 0.89), triceps skin fold (1.5 vs. 1.3), glucose (80 vs. 86 mg/dL), LDL (87 vs. 105 mg/dL), or TG (140 vs. 186 mg/dL). A SS increase in cholesterol (CL) (156 vs. 185 mg/dL) (p=0.02) and HDL (38 vs. 44 mg/dL) (p=0.01) was seen, more SS for naïve patients; CL (145 vs. 182 mg/dL) (p<0.001) and HDL (36 vs. 50 mg/dL) (p<0.005).

Variable	Naïve pts N=19	Prior PI exp N=79	Prior 3 class N=52
Median LPV/r duration (BL to entry)	3 Mo (0 – 41)	10.5 Mo (0 – 36)	8.5 Mo (0 – 25)
BL CD4	168	169	168
Entry CD4 (+chg)	314 (+146)**	190 (+21)	179 (+11)
Week 4 – 12 CD4	329 (+161)**	218 (+49)*	208 (+40)
Week 13 – 36 CD4	420 (+252)**	256 (+81)**	251 (+83)
BL VL (log)	4.9	4.1	4.1
Entry VL (chg from BL)	2.4 (-2.5)**	2.9 (-1.2)*	3.4 (-0.8)
Week 4 – 12 VL	2.1 (-2.8)**	3.2 (-0.9)	3.5 (-0.6)
Week 13 – 36 VL	1.1 (-3.8)**	2.6 (-1.5)*	2.7 (-1.4)
Week 13 – 36 VL <400	69%	49.2%	42.9%
Week 13 – 36 VL <50	69%	27%	24%

*p<0.05, **p<0.005 (vs. BL). All values median

Conclusions: LPV/r regimens had immunologic and virologic benefits in patients in all groups of ART experience, greatest in ART-naïve patients. In patients with lipid data, there was a SS increase in CL of 29 mg/dL and HDL of 6 mg/dL. No SS morphologic or ALT changes were seen.

Background

- Lopinavir/ritonavir (LPV/r) based regimens are recommended as first line therapy in treatment-naïve patients and are also used frequently in treatment-experienced patients.[1,2]
- Published data on the efficacy and durability of LPV/r in HIV treatment come from clinical trials.[3,4,5]
- It is important to describe the efficacy of LPV/r regimens in unselected, "real world" patients with varying categories of antiretroviral experience.

Objectives

- To describe the efficacy and durability of LPV/r-based regimens in HIV+ patients in all categories of antiretroviral experience.
- To describe the metabolic and anthropometric changes in patients who initiate LPV/r based regimens.

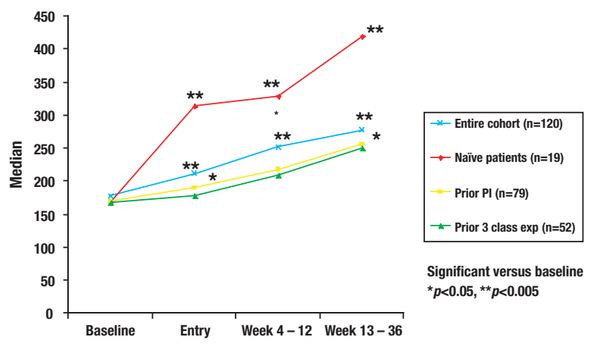
Methods

- A retrospective-prospective observational cohort study was conducted at the CORE Center, Chicago.
- From 10/2002 – 10/2003, HIV+ patients receiving LPV/r were enrolled in this study.
- Entry (E) was defined as date of enrollment in the study and Baseline (BL) was date of LPV/r initiation.
- Patients had four study visits; Entry, week 4 – 12, week 13 – 36 and week 37 – 48.
- At Entry, demographics, treatment history, metabolic data, baseline labs including CD4, HIVRNA (LFTS and lipids when available) and anthropometrics were collected.
- At subsequent visits, medication history, labs and anthropometrics were collected.
- All data analyzed in SPSS10, Chicago.

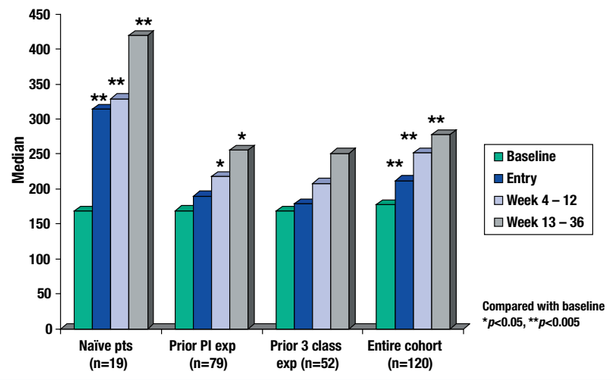
Baseline Characteristics (n=120)

Median duration on LPV/r (months)	7 (0 – 41)
Mean age (years)	44
% male	77%
% African American	72%
% Caucasian	19%
% Hispanic	9%
% HCV+, % HBsAg+	29%, 5%
Antiretroviral naïve, n (%)	19 (16%)
Prior NRTI experience	98 (82%)
Prior NNRTI experience	67 (57%)
Prior PI experience	79 (67%)
Prior 3 class experience	52 (43%)
Median CD4 (range)	177 (3 – 741)
Median HIVRNA (log)	4.34 (1.4 – 6.3)

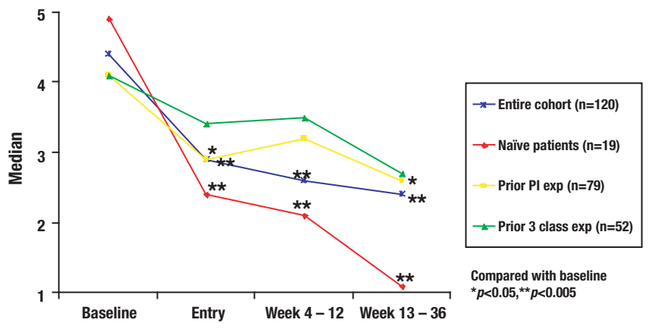
CD4 Counts Over Time for the Cohort and 3 Sub-Groups



CD4 Counts Over Time in the Cohort and 3 Sub-Groups



HIVRNA (log) Over Time in the Cohort and 3 Sub-Groups



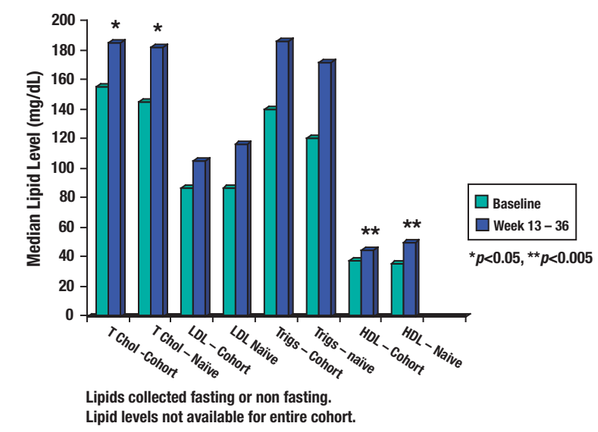
Percent With Undetectable HIVRNA at Week 13 – 36

Anthropometric and Lab Values Over Time in the Cohort

Variable	Baseline	Entry	Wk 4 – 12	Wk 13 – 36	*P* value
ALT (IU/L)	23	25	21	27	>0.2
Waist/Hip Ratio	NA	0.9	1.0	0.89	>0.2
Triceps Fold	NA	1.5	1.3	1.3	>0.2
Glucose (mg/dL)	80	85	87	86	0.08
Total Cholesterol	156	179	170	185	0.02
HDL-C	38	43	44	45	0.001
LDL-C	87	97	103	105	>0.2
Triglycerides	140	207	175	186	0.1

P values of <0.05 considered statistically significant. NOTE: Lipids, when available, were collected fasting or non-fasting. All values median.

Lipids Over Time in the Cohort and Naïve Sub-Group



Conclusions

- In our cohort of inner city patients (mostly ethnic minorities), we found significant beneficial immunologic and virologic effects of LPV/r-based regimens.
- LPV/r-based regimens showed benefits in all three groups, but were most apparent in treatment-naïve patients after a shorter median time on therapy.
- All patients initiating LPV/r, even those with prior 3 class experience, developed a greater than 1 log drop in HIVRNA.
- There were no significant changes in ALT values over time in this cohort despite a third of the patients being co-infected with HCV or HBV.
- There was a minimal elevation of cholesterol levels and a beneficial elevation in HDL levels, both being more pronounced in treatment-naïve patients.
- Over 36 weeks, no anthropometric evidence of morphologic change was seen.
- This study further demonstrates the safety, efficacy and durability of LPV/r in HIV+ patients with all categories of antiretroviral experience; with its greatest benefits in patients using it as the first line therapy.
- In our cohort representing unselected, "real world" patients, the rates of viral load suppression and immune recovery were similar to those reported in clinical trials with LPV/r.

References

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