Acute Medication Use Patterns in Episodic Migraine:
Results of the American Migraine Prevalence and Prevention Study (AMPP)

Richard B. Lipton, MD[1]; Dawn C. Buse, PhD[1]; Daniel Serrano, MS[2]; Wendy M. Golden, MD, MPD[3]; Ya-Ting Chen, PhD[3]; Marcelo E. Bigal MD, PhD[3]

1. Albert Einstein College of Medicine, Bronx, NY; 2. Vedanta Research, Chapel Hill, NC; 3. Merck & Co., Inc., Whitehouse Station, NJ

BACKGROUND

• Evaluating patterns of acute migraine treatment in the population is an important first step towards optimizing interventions for migraine care.
• Although prior studies have shown that over 95% of migraine sufferers use acute treatments, only a minority use migraine-specific agents, and overall satisfaction with therapy is low.[1-2]
• Patterns of acute medication use by episodic migraine (EM) sufferers in the population have not been well characterized.

OBJECTIVE

•To describe patterns of acute medication use including: persistence, escalation and de-escalation over a one year period among EM.

METHODS

• The AMPP is a longitudinal, prospective, population-based, mailed questionnaire study. Respondents were identified in 2004 by screening 120,000 US households to identify 24,000 individuals with severe headache who have since been followed on an annual basis.
• The AMPP survey includes demographics data, headache symptomology which allows for the classification of headache type according to ICHD-2 criteria,[3] headache frequency, and medication use among other data.
• This study included 1,392 respondents to the 2005 survey who met ICHD-2 criteria for migraine in 2005, reported 14 or fewer headache days per month (EM), were taking at least one triptan medication, and provided medication data to both 2005 and 2006 surveys.
• Respondents were asked to identify all medications they "currently" used to treat their "most severe type of headache".
• Medication categories of interest included: triptans, barbiturate products, opioid products, and ergotamines. 7 triptan medications were considered separately, other medications of interest were analyzed at the class level.
• Patterns of medication use were compared between 2005 and 2006. Patterns of use were classified as:
   Escalation: ≥1 triptan(s) or other class(es) of medication added in 2006
   De-escalation: ≥1 triptan(s) or other class(es) of medication discontinued in 2006
   Consistent: no change in medications of interest between 2005 and 2006
• Predictors of escalation or de-escalation were analyzed using logistic regression models.
• Analyses controlled for demographics, headache-related-disability (MIDAS), allodynia (ASC-12), and depression (PHQ-9).

RESULTS

• The following rates were found: escalation: N= 201 (14.4%), consistent N= 793 (57.0%), de-escalation N= 398 (28.6%).
• Predictors of escalation included African-American race (odds ratio [OR]= 2.06, 95%CI=1.01,4.20,p=0.05 compared to Caucasian) and depression (ORs increased with level of depression).
• Higher annual household income and higher education were protective against escalation. (Table 1)
• Predictors of de-escalation included African-American race (OR=2.62, 95%CI=1.50,4.57,p=0.0007), older age, depression, and allodynia.
• Higher annual household income and having health insurance were protective against de-escalation. (Table 2)
• Depression was the primary predictor for both escalation and de-escalation in multivariate models. Odds of escalation of those with depression were nearly 2.65 times the odds of those without depression (OR=2.65, 95%CI=1.43, 4.9, p=.002). Odds of de-escalation for depressed subjects were nearly two times those without depression (OR=1.82, 95%CI=1.06, 3.12, p=.03). (Tables 1 & 2)

Table 2. Predictors of De-escalation

Variable	No De-escalation	De-escalation	OR; 95% CI	Chi Squared; p value
All Respondents	793(66.58%)	398(33.42%)	0.50,95%CI=(0.44,0.57)	125.94(DF=1),P=0.0000
Race				
Caucasian	746(68.44%)	344(31.56%)	*REFERENCE*	*REFERENCE*
African-American	24(45.28%)	29(54.72%)	*2.62,95%CI=(1.50,4.57)*	11.54(DF=1),P=0.0007 *
Age				
18-29	54(55.10%)	44(44.90%)	*REFERENCE*	*REFERENCE*
30-39	157(63.05%)	92(36.95%)	0.72,95%CI=(0.45,1.16)	1.86(DF=1),P=0.1728
40-49	257(66.41%)	130(33.59%)	0.62,95%CI=(0.40,0.97)	4.30(DF=1),P=0.0381 *
50-59	236(71.08%)	96(28.92%)	0.50,95%CI=(0.31,0.79)	8.63(DF=1),P=0.0033 *
60+	89(71.20%)	36(28.80%)	0.50,95%CI=(0.28,0.86)	6.11(DF=1),P=0.0134 *
Depression (PHQ-9)				
No Depression	454(70.17%)	193(29.83%)	*REFERENCE*	*REFERENCE*
Minor Depression	283(63.88%)	160(36.12%)	1.33,95%CI=(1.03,1.72)	4.74(DF=1),P=0.0295 *
Major Depression	45(54.88%)	37(45.12%)	1.93,95%CI=(1.21,3.08)	7.68(DF=1),P=0.0056 *
Allodynia (ASC-12)				
No Allodynia	171(74.03%)	60(25.97%)	*REFERENCE*	*REFERENCE*
Mild Allodynia	156(64.20%)	87(35.80%)	1.59,95%CI=(1.07,2.36)	5.31(DF=1),P=0.0212 *
Moderate Allodynia	141(68.12%)	66(31.88%)	1.33,95%CI=(0.88,2.02)	1.86(DF=1),P=0.1731
Severe Allodynia	176(59.06%)	122(40.94%)	1.98,95%CI=(1.36,2.87)	12.74(DF=1),P=0.0004 *
Household income/ year				
<$22,500	96(51.89%)	89(48.11%)	*REFERENCE*	*REFERENCE*
$22,500-$39,999	125(62.81%)	74(37.19%)	0.64,95%CI=(0.42,0.96)	4.66(DF=1),P=0.0309 *
$40,000-$59,999	156(67.83%)	74(32.17%)	0.51,95%CI=(0.34,0.76)	10.80(DF=1),P=0.0010 *
$60,000-$89,999	177(70.24%)	75(29.76%)	0.46,95%CI=(0.31,0.68)	15.09(DF=1),P=0.0001 *
$90,000+	239(73.54%)	86(26.46%)	0.39,95%CI=(0.27,0.57)	23.91(DF=1),P=0.0000 *
Health Insurance Status				
Uninsured	31(39.24%)	48(60.76%)	*REFERENCE*	*REFERENCE*
Insured	755(68.57%)	346(31.43%)	0.30,95%CI=(0.19,0.47)	25.87(DF=1),P=0.0000 *
Education (dichotomous)				
High school grad or less	149(63.14%)	87(36.86%)	*REFERENCE*	*REFERENCE*
College grad or higher	637(67.48%)	307(32.52%)	0.83,95%CI=(0.61,1.11)	1.60(DF=1),P=0.2061 *

*** Stastically significant at p<0.05**

Table 1. Predictors of Escalation

Variable	No Escalation	Escalation	OR; 95% CI	Chi Squared; p value
All Respondents	793(79.78%)	201(20.22%)	0.25,95%CI=(0.22,0.30)	302.08(DF=1),P=0.0000
Race				
Caucasian	746(80.47%)	181(19.53%)	*REFERENCE*	*REFERENCE*
African-American	24(66.67%)	12(33.33%)	*2.06,95%CI=(1.01,4.20)*	3.97(DF=1),P=0.0465 *
Depression (PHQ-9)				
No Depression	454(83.76%)	88(16.24%)	*REFERENCE*	*REFERENCE*
Minor Depression	283(76.28%)	88(23.72%)	1.60,95%CI=(1.15,2.23)	7.85(DF=1),P=0.0051 *
Major Depression	45(66.18%)	23(33.82%)	2.64,95%CI=(1.52,4.58)	11.86(DF=1),P=0.0006 *
Household income/ year				
<$22,500	96(69.57%)	42(30.43%)	*REFERENCE*	*REFERENCE*
$22,500-$39,999	125(78.62%)	34(21.38%)	0.62,95%CI=(0.37,1.05)	3.15(DF=1),P=0.0758
$40,000-$59,999	156(82.54%)	33(17.46%)	0.48,95%CI=(0.29,0.81)	7.44(DF=1),P=0.0064 *
$60,000-$89,999	177(81.57%)	40(18.43%)	0.52,95%CI=(0.31,0.85)	6.73(DF=1),P=0.0095 *
$90,000+	239(82.13%)	52(17.87%)	0.50,95%CI=(0.31,0.80)	8.47(DF=1),P=0.0036 *
Education (dichotomous)				
High school grad or less	149(74.13%)	52(25.87%)	*REFERENCE*	*REFERENCE*
College graduate or advanced degree	637(81.25%)	147(18.75%)	0.66,95%CI=(0.46,0.95)	4.99(DF=1),P=0.0256 *

*** Stastically significant at p<0.05**

CONCLUSIONS

• In a cohort of EM sufferers who used at least one triptan for acute treatment from the US population over a one year period:
   • 57.0% remained on the same medication regimen
   • 14.4% escalated and 28.6% de-escalated their acute headache treatment regimens
• Predictors of escalation and de-escalation included African-American race and depression. Depression may motivate change in both directions due to dissatisfaction.
• Protective factors included having health insurance, college or higher education, and higher household income.

REFERENCES

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