A Pilot Study and Retrospective Chart Review Comparing Adalimumab, Infliximab, and Etanercept in Patients with Active Rheumatoid Arthritis

A Research Project by

Laura Downey

Bachelor of Science, Kansas State University, 2003

and

Shana Arnhold

Bachelor of Science, Kansas State University, 2004

A project presented to the Department of
Physician Assistant of Wichita State University
in partial fulfillment of the
requirements for the degree
of Master of Physician Assistant

May, 2007

Wichita State University

College of Health Profcssions

Department of Physician Assistant

We hereby recommend that the research project prepared under our supervision by Laura Downcy and Shana Arnhold entitled A Pilot Study and Retrospective Chart Review Comparing Adalmumab, Infliximab, and Etanercept in Paticnts with Active Rheumatoid Arthritis be accepted as partial fulfillment for the degree of Master of Physician Assistant.

Approved:

Richard D. Muma, PhD, MPH, PA-C, Chair and Associate Professor
Department of Physician Assistant

Timothy Quigley, MPH, PA-C, Research Advisor
Department of Physician Assistant

May 05 2007
Date

ACKNOWLEDGMENTS

We would like to acknowledge Timothy Quigley, MPH, PA-C for his assistance, guidance and continuous encouragement of our project, Sue Nyberg, MPH, PA-C, for her added advice on the project, Dr. Shadi Shahouri, MD for his knowledge, advice, and council during the data collection, Janet Twomey, PhD, for her help on the statistics and data analysis, the Department of Physician Assistant for their support on this project, and our families for their love and support.

TABLE OF CONTENTS

INTRODUCTION

Rheumatoid Arthritis (RA) is an autoimmune disease characterized by persistent joint inflammation resulting in degradation of affected joints and other systemic complications. Without treatment, 20-30% of patients will be permanently disabled in two to three years.[1] More recent studies have revealed that half of people with RA are disabled in 10 years after diagnosis.[10] Early treatment is imperative to slow the rate of disease progression. Treatments generally involve NSAIDs, glucocorticoids, Disease Modifying Antirheumatic Drugs (DMARDs) like methotrexate, and newer DMARDs like leflunomide, anakinra, and tumor necrosis factor inhibitors (TNF-Is).[1] Many of these are used in combination with the goals of maintaining function and quality of life, controlling pain, and reducing comorbidities.[1]

Through a retrospective chart review conducted at Arthritis and Rheumatology Clinics of Kansas (ARCK), we compared specific TNF-Is: Infliximab (Remicade), Adalimumab (Humira), and Etanercept (Enbrel) (hereafter collectively referred to as TNF-Is) in relation to several indicators of disease severity and changed in the severity over time. These indicators are Health Assessment Questionnaire (HAQ) Score, pain score, and fatigue score. These drugs inhibit tumor necrosis factor, a cytokine found in synovial joints in patients with RA that promotes inflammation, therefore leading to erosion of bone and cartilage. TNF-Is are fairly new and therefore need to be studied more in depth and in comparison to one another, so that clinicians can be confident in the efficacy of the treatment chosen.

LITERATURE REVIEW

The databases utilized to obtain articles were Medline and PubMed. MeSH terms used were rheumatoid arthritis, TNF inhibitors, HAQ Score, biologics and combinations of these terms.

The treatment of RA has drastically changed over the past decade with the advent of biologic agents. The three TNF-Is studied employ slightly different mechanisms of action and vary in dosing and administration, but all block the effect of TNF, a pro-inflammatory cytokine which leads to bone and cartilage destruction. All have also been shown to decrease symptoms of RA, joint destruction and disability and are much more effective at doing so than older DMARDs.[10]

Research has been conducted to further determine the efficacy and associated risks of TNF-Is. Evidence of efficacy of these anti-TNF drugs in RA patients was proven in five metaanalyses of randomized controlled trials (RCTs).[11-15] Efficacy was based on clinical response by measuring joint damage assessed by x-ray, HAQ scores, American College of Rheumatology (ACR) scores, Disease Activity Scores (DAS), Sharp score and Short Form 36.[10] Research on the effect that biologics have on mortality has also been conducted. One study by Jacobsson, et al found that those treated with TNF-Is had less mortality risk than those not receiving treatment when controlled for disease severity.[8] Also of note is the finding by Sihvonen et al that long-term glucocorticoid use (10 yrs or more) increased mortality rates in comparison to those not receiving them.[7]

There is still need for more research on TNF-Is. To date there have been no head-to-head RCTs between biologic agents, although indirect comparisons compiled by

Gartlehner, et al have shown little or no difference in efficacy between adalimumab, etanercept and infliximab. These three drugs do, however, seem to be consistently better than anakinra, another biologic agent.[9] There has also been one nonrandomized trial in Europe that indicated superior efficacy of etanercept over infliximab at 3 months and 6 months after beginning treatment, but no difference between the two after one year.[9]

The benefits of these drugs seem to outweigh the downfalls, but disadvantages like cost do exist. The estimated cost of TNF antagonists range from $10,000 to $25,000 yearly, although some studies have shown that they are cost-effective when calculated as cost per quality adjusted life year (QALY) and in comparison to non-biologics.[2,3,6] These drugs are administered either through intravenous therapy (Infliximab) or subcutaneous infusion (Adalimumab, Etanercept) every two to eight weeks, depending on the drug. Patients can give themselves injections of Adalimumab and Etanercept at home, but do need to visit a clinic for administration of Infliximab, which may be perceived as another drawback.[1] Currently, developers are working on monthly subcutaneous injections for TNF-Is.[10]

The TNF-Is themselves seem to be well tolerated. Serious complications such as infection (including latent TB reactivation), exacerbation of Hepatitis B or other viruses, and possibly lymphoma or other solid malignancies have occurred, but discontinuation rates secondary to unfavorable reactions were generally not different from placebo-treated patients.[9,10]

This study is using the HAQ score as one method of measuring effectiveness of the three TNF-Is. These questionnaires are a self-reported measure of functional status that inquires about pain, discomfort and disability. They are completed by the patient at each

visit to the clinic and reflect the efficacy of the TNF inhibitors. The HAQ is accepted as a sensitive measurement of drug effectiveness and has been used in RA clinical trials.[4]

Even though some questions still exist regarding long-term side effects of TNF-Is, it has recently been concluded that TNF-I treatment should begin early in the disease process. This measure would halt further progression of the disease since 50% of detectable radiographic damage occurs during the first 5 years after diagnosis.[5] New research has also shown that patients having RA for 3 years or less have a better response to treatment than those with long-standing RA, and combination treatment of a TNF-I plus methotrexate is superior to either alone.[10] This is in contrast to an older approach suggesting treatment with TNF-Is only be implemented after failing two previous 6 month trials with other DMARDs such as methotrexate.[2]

This study compares three TNF-Is: infliximab, adalimumab, and etanercept in order to define the drug(s) with the best efficacy. Due to lack of head-to-head research of TNF-Is and the small sample size utilized, this study is intended to be a pilot study in RA treatment research.

METHODS

Purpose of the Study

Our research purpose is to determine the efficacy of Adalimumab, Infliximab, and Etanercept when compared in similar sample populations. Overall, our main objective is to determine the effect these drugs have on the HAQ Score, a measure of severity in Rheumatoid Arthritis, along with patients' perceived pain and fatigue. The null hypothesis is that the three TNF-Is studied will be equal in all aspects mentioned. We hope to reject this hypothesis.

Design/ Setting

A retrospective chart review was completed at ARCK in Wichita, Kansas under the supervision of Dr. Shahouri. Patient charts allowed extraction and analysis of these indicators of severity: pain score, fatigue score, and HAQ Score for each visit date, as well as pre-drug treatment and visit date closest to 1 year after treatment began at the ARCK. These values were entered into an Excel database along with patient ID number, age, and date of diagnosis. Each patient upon every visit to ARCK fills out forms from which the pain, fatigue, and HAQ scores are calculated. These scores reflect the functional status of the patient.

Study Population

Our study population includes all female patients between 35 and 65 years old who 1) have active Rheumatoid Arthritis (positive rheumatoid factor), 2) were seen at ARCK between July 2003 to July 2005 and 3) were on Infliximab, Adalimumab, or Etanercept. The study was limited to females between 35 and 65 to limit total number of subjects as well as additional comorbidities, which tend to be more prevalent in the elderly.

The time period was restricted to dates before July of 2005, because at that time, the HAQ survey form was changed and those scores could not be compared to previous HAQ scores. July of 2003 was chosen as the beginning date because the researchers felt that a two-year window would be sufficient to analyze drug efficacy.

A search on the ARCK database allowed extraction of a master list of all patients meeting the inclusion criteria as noted above. The total sample size was 3,340. These charts were individually pulled and reviewed to ensure all those meeting exclusion criteria were eliminated.

Those patients who met the inclusion criteria, but had inflammatory arthritis, autoimmune disorders other than RA, other pain disorders, or were taking immunosuppressive therapy other than methotrexate, prednisone or other TNF-Is were excluded. The other autoimmune disorders and immunosuppressive drugs excluded were provided by Dr. Shahouri at ARCK.

The other autoimmune disorders that excluded patients from this study were Ankylosing Spondylitis, Scleroderma, Lupus, Sjogrens Syndrome, Vasculitis, Dermatomyositis, Psoriatic Arthritis, Enteropathic Arthritis, and Gout. Other pain

disorders like Chronic Fatigue Syndrome and Fibromyalgia were also excluded due to their probable influence on the pain and fatigue scores.

The immunosuppressive drugs that were excluded include Plaquenil, Sulfasalazine, Asathioprine, Cyclophosphamide, Leflunamide, Mycophenolate Mophefil, and Cyclosporines.

Finally, patients receiving an Infliximab dose more frequently than every 8 weeks had to be eliminated, as were patients injecting more that 50mg of Etanercept or 40mg of Adalimumab weekly in order to standardize results.

Confidentiality and IRB approval

HIPAA regulations will be followed including restriction of chart information to only those involved in this research project. Any information used will not disclose patient identities. In addition, the Institutional Review Board at WSU has already approved this study.

Measurements

The data was collected by entering the chart number (Patient ID number) and the patient's date of birth, age and date of diagnosis. The age of each patient is printed on the master list of women with RA and the date of diagnosis was determined by the initial coding of the diagnosis of "Rheumatoid Arthritis." If a historical reference was made, i.e. Mary Smith has had RA for 8 years, then January 1st of 1998 was used as her date of diagnosis (since the data was collected in 2006). The dose of the drug being studied was

entered, along with the pain, fatigue, and HAQ score for each visit date between 7/03 and 7/05. If the patient was taking an NSAID, narcotic, or other analgesic (see attached lists of each), this was noted since this fact may impact the patient's level of pain at a given time. Similarly, if the patient was taking methotrexate or prednisone at the time of any visit date entered, the dose of that medication was also entered.

After reviewing the outcomes from this data, it was determined that baseline data needed to be collected to make the data more meaningful. At this time the start date for the drug plus the pain, fatigue, and HAQ scores at this time were collected. The scores on the day the medication was begun reflect pre-treatment feelings of pain and fatigue. These same scores were collected at one year after beginning the drug. The date recorded in the chart that was *closest* to a year after beginning treatment was used. At this time, notes were also entered on reasons why a patient switched from one drug to another, or any documented side effects of each drug being studied, as well as additional notes to the statistician. This added data was collected in order to see any change in the pain, fatigue and HAQ after a longer period of time. This indicates the improvement or worsening of symptoms and overall patient perception of how well the drug is working.

Data Analysis

Statistical tests were performed with the help of Wichita State University Engineering professor, Janet Twomey, PhD. These tests included one-way ANOVA and Non-Parametric tests. Two-way comparisons controlling for the number of tests were performed for the ANOVAs where $p < .05$. Delta was the change in pain, fatigue or HAQ after one year. For example, (baseline pain) – (pain 1 year later) = delta pain. If delta is

positive, symptoms improved, and if delta is negative, symptoms worsened. Results for pain, fatigue and HAQ are shown in Table 1 below for each individual drug. (See appendix for data collection and Health Assessment Questionaire)

TABLE 1

	Infliximab N=26	Etanercept N=8	Adalimumab N=11	P Value
Delta Pain	1.7 (2.0)*	.70 (3.0)	-2.1 (2.2)	0.00
Delta Fatigue	.75 (2.4)	-.06 (1.9)	-1.8 (3.0)	0.023
Delta HAQ	.16 (.50)	-.40 (.92)	-.18 (.73)	0.08

* = Delta (Standard Deviation)

RESULTS

A significant difference for pain was found within the 3 drugs. Two by two comparison indicated that patients on Infliximab had the most improvement for pain and was significantly different than Adalimumab, but not Etanercept. Similar results were found for fatigue. The HAQ scores were not found to be significantly different, although Infliximab was the only drug to seem to improve the HAQ overall. Lastly, there was no significant difference in the population's age between each of the three drugs ($p=.012$).

DISCUSSION

In this retrospective chart review, 3340 total women were evaluated, but only 45 women with RA were included in the study and analyzed (Infliximab=26, Adalimumab=11, Entanercept=8) for change in pain, fatigue in HAQ score before and after beginning treatment with a TNF-I. Our findings indicate that Infliximab improved the overall pain, fatigue and HAQ, but was only significantly different for pain.

There are multiple limitations to this pilot study, implying a definite need for future research. One limitation of this study is that the subjects are all from one clinic in Kansas, therefore not representing all Rheumatoid Arthritis patients. Results cannot necessarily be generalized to all patients with RA. Exclusion criteria, although necessary, is also drawback since different conditions (in conjunction with RA), present in the true population, are left out. Other existing medical conditions, known or unknown, may also complicate results.

Lab values that would have been helpful in this study as measures of disease severity, improvement or side effects include CRP, WBC, Hgb, Hct, Cr, AST, and ALT. These were not able to be utilized due to lack of consistent documentation and lab work intervals.

The HAQ is a document that demands calculation of an overall "score." If this score was not calculated for specific visits, these visits were not able to be entered into our database. Only the dates of that the HAQ was calculated were used. A patient could have had multiple visits, but only dates that the HAQ was calculated within the time frame were used.

Evaluation of adverse effects of the drugs would have been beneficial to measure how well it was tolerated and determined if the reason a patient switched was because of the side effects.

The TNF-I chosen by the physician from the beginning has no bearing on proven efficacy of the drug. As reported by the physicians at ARCK, drugs were chosen on physician or patient preference or insurance coverage. For example, only one of the three drugs, Infliximab, is covered by Medicaid. If the patients had Medicaid, then they were often first placed on Infliximab due to the high cost of medication without coverage.

Other limitations include: very few visit dates for an individual patient, not equal number of sample size between the three drugs, the date of diagnosis may not actually reflect the true date of diagnosis with RA, many areas of documentation, and of course some human error. Also, other medications in the database (NSAIDS, narcotics, methotrexate and prednisone) that were recorded were not statistically analyzed to determine their effect on the scores.

CONCLUSION

This study was a Retrospective Chart Review of a very small sample of women between the ages 35-65 with active RA. When comparing 3 TNF-Is for efficacy based on change in the pain, fatigue and HAQ score over a 1 year period, results indicate that Infliximab patients showed improvements for pain after 1 year of treatment. There is so much variability in this study due to many factors; therefore, a larger sample size is needed for future research.

REFERENCES

1. Rindfleisch J & Muller D. Diagnosis and management of rheumatoid arthritis. *American Family Physician.* 2005;72:1037-1047.

2. Brennan A, et al. Modelling the cost-effectiveness of etanercept in adults with rheumatoid arthritis in the UK. *Rheumatology.* 2004;43:62-72.

3. Kobelt G, Eberhardt K, and Geborek P. TNF inhibitors in the treatment of rheumatoid arthritis in clinical practice: costs and outcomes in a follow-up study of patients with RA treated with etanercept or infliximab in southern Sweden. *Ann Rheum Dis.* 2004;63:4-10.

4. Scott DL and Strand V. The effects of disease-modifying anti-rheumatic drugs on the Health Assessment Questionnaire score. Lessons form the leflunomide clinical trials database. *Rheumatology.* 2002;41:899-909.

5. Weaver AL. The impact of new biologicals in the treatment of rheumatoid arthritis. *Rheumatology.* 2004;43:iii17-iii23.

6. Scott DL, Kingsley MB. Tumor necrosis factor inhibitors for rheumatoid arthritis. *The New England Journal of Medicine*. 2006;355:704-12.

7. Sihvonen S, et al. Mortality in patients with rheumatoid arthritis treated with low-dose oral glucocorticoids. A population-based cohort study. *The Journal of Rheumatology*. 2006;33:1740-46.

8. Jacobsson L, et al. Treatment with TNF-blockers and mortality risk in patients with rheumatoid arthritis. *Ann Rheum Dis Online* 11 December 2006. 18 December 2006 http://ard.bmj.com/cgi/content/abstract/ard.2006.062497v1.

9. Gartlehner G, et al. The comparative efficacy and safety of biologics for the treatment of rheumatoid arthritis: a systematic review and metaanalysis. *The Journal of Rheumatology* 2006;33:2398-2408.

10. Peng-Thim F, Keng-Hong L. The use of biological agents in the treatment of rheumatoid arthritis. *Ann Acad Med Singapore* 2007;36:128-34.

11. Jobanputra P, et al. The effectiveness of infliximab and etanercept for the treatment of rheumatoid arthritis: a systematic review and economic evaluation. *Health Technol Assess* 2002;6:1-110.

12. Blumenauer B, et al. Infliximab for the treatment of rheumatoid arthritis. The Chochrane Database of Systematic Reviews 2002:CD003785.

13. Blumenauer B, et al. Etanercept for the treatment of rheumatoid arthritis. The Cochrane Database of Systematic Reviews 2003:CD004525.

14. Clark W, et al. The clinical and cost-effectiveness of anakinra for the treatment of rheumatoid arthritis in adults: a systematic review and economic analysis. *Health Technol Assess* 2004;8:iii-iv, ix-x, 1-105.

15. Navarro-Sarabia F, et al. Adalimumab for treating rheumatoid arthritis. The Cochrane Database of Systematic Reviews 2005:CD005113.

Vita

Name: Laura Downey

Date of Birth: May 31, 1981

Place of Birth: San Diego, CA

Education:

2005-2007	Master-Physician Assistant Studies (M.P.A.S.) Wichita State University, Wichita, KS
1999-2003	Bachelor of Science-Lifescience (B.S.) Kansas State University, Manhattan, KS

Honors:

Physician Assistant Foundation Scholarship Recipient (Wichita State)

Physician Assistant Student Society Class President 2005-2007 (Wichita State)

Big 12 Conference Libero of the Year for Volleyball 2002, 2003 (Kansas State)

Big 12 Conference All-Academic Team 2002, 2003 (Kansas State)

Vita

Name: Shana Arnhold

Date of Birth: July 17, 1982

Place of Birth: Hays, KS

Education:

2005-2007	Master-Physician Assistant Studies (M.P.A.S.) Wichita State University, Wichita, KS
2000-2004	Bachelor of Science-Kinesiology (B.S.) Kansas State University, Manhattan, KS

Honors:

Sam and Rosemary Sherr Memorial Scholarship/Fellowship

Kansas State Leadership Scholarship

Mary Lois Sykes Memorial Scholarship

Eva Lyman Kinesiology Scholarship

Gamma Phi Beta Academic Award (all semesters)

Clinical Health Assessment Questionnaire (CLINHAQ)

Initials: ☐☐☐ DOB: mm ☐☐ / dd ☐☐ / yyyy 1 9 ☐☐ Name: (Optional) _____

We are interested in learning how your illness affects your ability to function in daily life. Place an X in the box which best describes your usual abilities OVER THE PAST WEEK:

Visit Date: mm ☐☐ / dd ☐☐ / yyyy ☐☐☐☐

Are you able to:

	Without Any Difficulty (0)	With Some Difficulty (1)	With Much Difficulty (2)	Unable To Do (3)	
Dress yourself, including shoelaces and buttons?	☐	☐	☐	☐	
Shampoo your hair?	☐	☐	☐	☐	(D)
Get in and out of bed?	☐	☐	☐	☐	
Stand up from a straight chair?	☐	☐	☐	☐	(A)
Lift a full cup or glass to your mouth?	☐	☐	☐	☐	
Cut your meat?	☐	☐	☐	☐	
Open a new milk carton?	☐	☐	☐	☐	(E)
Walk outdoors on flat ground?	☐	☐	☐	☐	
Climb up five steps?	☐	☐	☐	☐	(W)

Please place an X in the box beside any aids or devices that you usually use for any of the above activities:

☐ Cane (W) ☐ Crutches (W) ☐ Walker (W) ☐ Wheelchair (W) ☐ Built up or special utensils (E)

☐ Devices used for dressing (button hook, zipper pull, long handled shoe horn) (D) ☐ Special or built up chair (A)

Place an X in the box beside any categories for which you usually need HELP FROM ANOTHER PERSON:

☐ Dressing and Grooming (D) ☐ Arising (A) ☐ Eating (E) ☐ Walking (W)

AT THIS MOMENT, are you able to:	Without Any Difficulty (0)	With Some Difficulty (1)	With Much Difficulty (2)	Unable To Do (3)
Walk two miles?	☐	☐	☐	☐
Participate in sports and games as you would like?	☐	☐	☐	☐
Get a good night's sleep?	☐	☐	☐	☐
Deal with feelings of anxiety or being nervous?	☐	☐	☐	☐
Deal with feelings of depression or feeling blue?	☐	☐	☐	☐

We are also interested in learning whether or not you are affected by pain because of your illness.

How much pain have you had because of your illness in the past week? Place an X in the box that best describes the severity of your pain on a scale of 0-10.

NO PAIN **0** ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ **10** SEVERE PAIN

How much of a problem has sleep (i.e. resting at night) been for you IN THE PAST WEEK? Place an X in the box below that best describes how much of a problem sleep has been for you on a scale of 0-10.

SLEEP IS NO PROBLEM **0** ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ ☐ ☐ ☐ ○ **10** SLEEP IS A MAJOR PROBLEM

Place an X in the box which best describes your usual abilities OVER THE PAST WEEK:

ARE YOU ABLE TO:	Without Any Difficulty (0)	With Some Difficulty (1)	With Much Difficulty (2)	Unable To Do (3)	
Wash and dry your body?	☐	☐	☐	☐	
Take a tub bath?	☐	☐	☐	☐	
Get on and off the toilet?	☐	☐	☐	☐	(H)
Bend down to pick up clothing from the floor?	☐	☐	☐	☐	
Reach and get down a 5 pound object (such as a bag of sugar) from just above your head?	☐	☐	☐	☐	(R)
Turn faucets on and off?	☐	☐	☐	☐	
Open jars which have been previously opened?	☐	☐	☐	☐	
Open car doors?	☐	☐	☐	☐	(G)
Get in and out of a car?	☐	☐	☐	☐	
Run errands and shop?	☐	☐	☐	☐	
Do chores such as vacuuming or yardwork?	☐	☐	☐	☐	(E/C)

Please place an X in the box beside any AIDS or DEVICES that you usually use for any of these activities:

☐ Bathtub bar (H)
☐ Raised toilet seat (H)
☐ Jar opener for jars previously opened (G)
☐ Long-handled appliances in bathroom (H)
☐ Long-handled appliances for reach (R)
☐ Other (please specify) _____ (H,G,R, E/C))

Please place an X in the box beside any categories for which you usually need HELP FROM ANOTHER PERSON:

☐ Hygiene (H) ☐ Reach (R) ☐ Gripping and opening things (G) ☐ Errands and Chores (E/C)

We are interested in knowing about any problems that you may have been having with fatigue. How much of a problem has fatigue or tiredness been for you IN THE PAST WEEK? Place an X in the box below that best describes the severity of your fatigue on a scale of 0-10.

FATIGUE IS NO PROBLEM **0** ☐ **10** FATIGUE IS A MAJOR PROBLEM

How satisfied are you with your HEALTH NOW?

☐ Very satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied ☐ Very dissatisfied

---

Considering ALL THE WAYS THAT YOUR ILLNESS AFFECTS YOU, RATE HOW YOU ARE DOING on the following scale. Place an X in the box below that best describes how you are doing on a scale of 0-10.

VERY WELL 0 ☐ 10 VERY POORLY

How much trouble have you had with your stomach (i.e., nausea, heartburn, bloating, pain, etc.) in the past week? Place an X in the box that best describes the severity of your stomach problems on a scale of 0-10.

NO STOMACH PROBLEMS 0 ☐ 10 SEVERE STOMACH PROBLEMS

Please place an X in the box under the most appropriate answer for each question. Try to answer every question.

DURING THE PAST MONTH:	**Always**	**Very Often**	**Fairly Often**	**Some-times**	**Almost Never**	**Never**
1. How much of the time have you enjoyed the things you do?	☐	☐	☐	☐	☐	☐
2. How much of the time have you felt tense or "high strung"?	☐	☐	☐	☐	☐	☐
3. How much have you been bothered by nervousness, or your "nerves"?	☐	☐	☐	☐	☐	☐
4. How often did you find yourself having difficulty trying to calm down?	☐	☐	☐	☐	☐	☐
5. How much of the time have you been in low or very low spirits?	☐	☐	☐	☐	☐	☐
6. How much of the time did you feel relaxed and free of tension?	☐	☐	☐	☐	☐	☐
7. How much of the time have you felt downhearted and blue?	☐	☐	☐	☐	☐	☐
8. How often did you feel that nothing turned out for you the way you wanted it to?	☐	☐	☐	☐	☐	☐
9. How much of the time have you felt calm and peaceful?	☐	☐	☐	☐	☐	☐
10. How often did you feel that others would be better off if you were dead?	☐	☐	☐	☐	☐	☐
11. How much of the time were you able to relax without difficulty?	☐	☐	☐	☐	☐	☐
12. How often have you felt so down in the dumps that nothing could cheer you up?	☐	☐	☐	☐	☐	☐

FOR OFFICE USE ONLY **For scan-fax scoring, fax form to 316-262-0382**

HAQ	_____	FATIGUE	_____
MHAQ	_____	SATISFACTION	_____
PAIN	_____	GLOBAL	_____
SLEEP	_____	GI	_____
ANXIETY	_____	DEPRESSION	_____

Clinic ID _____ Doctor ID _____

0	.000	9	1.125	18	2.250
1	.125	10	1.250	19	2.375
2	.250	11	1.375	20	2.500
3	.375	12	1.500	21	2.625
4	.500	13	1.625	22	2.750
5	.625	14	1.750	23	2.875
6	.750	15	1.875	24	3.000
7	.875	16	2.000		
8	1.000	17	2.125		