October 18, 1989

To: C.M. Beasley

CC: J.C. Bosomworth

B.E. Dornseif

Per your request, question 1, worch was discussed during our phone conversation on October 13, 1989, was analyzed. The report is attached. Again, posase call Bruce, Janet or me if you have any questions of additional requests.

M.E. Sayler (6-9039)

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EXHIBIT

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Association of Drug with Activating and/or Sedating TESS events
Fluoxetine vs. Imipramine vs. Placebo
(Question 1)

Data from the three-cell study in depression (project HCAF) is used to determine whether or not the frequencies of activating and/or a sedating TESS events for the three drugs (fluoxetine, imipramine and placebo) are different. In estigator was dropped from all analyses. Of the remaining patients, seven were dropped because they were classified as both agitated and retarded, and one patient was dropped because he was not classified. (This population was used for consistency with questions two and three.) Thus, data from 698 patients were used for the analyses. The information included for these patients for this report is:

- the drug the patient had taken

- the occurrence of activating and sedating events

- whether or not the patent discontinued drug due to an activating or sedating event.

The specific events of interest are

Activating:

Nervousness

Anxiety@n Agitat@n

Insomnia Somnorence

Sedating:

Astrenia

Since some patients reported combinations of these events, different adverse event groups need to be defined to keep interpretations of the data clear. The group names and definitions used are

Activating

Some or more of the activating events and possibly one or both of the sedating events.

Sedatin

one or both of the sedating events and possibly one or more of the activating events.

Activating only:

One or more of the activating events but neither of the sedating events

Sedating Only: 4

one or both of the sedating events but not any of the activating events

Mixed:

one or more of the activating events and one or both of the sedating events

For each of these adverse event groups, a table of percentages is presented. The percentage of patients who reported an event or set of events in the adverse event group is given for each drug. The number of patients who were in the study and taking the particular drug is given by N. of patients out of N who reported an event or set of events in The number the adverse event group is given by no the percentage is given in parentheses after n. Tables of percentages are also given for those patients who discontinued druggiue to an event or events in the group. Finally, tables are given for the percentages of

occurrences of the individual evers that make up the groups. For each adverse event group a chi-square test was done to test the hypothesis that the occurrence of the event or events in the group is independent of the drug. The p-value for the simultaneous comparison is given next to the table of percentages. If this p-value is less than or equal to 0.05, the p-values for the pairwise comparisons are provided.



TABLES OF PERCENTAGES

Adverse event group: Activating (n=number of patients who reported an activating event)

Drug	_N	n(%)	Comparison &
Fluox Imip Plac Total	235 238 225 698	79(34) 56(24) 39(17)	Comparison p-value Simultaneous .000 Fluox vs Plac .000 Imip vs Plac .009 Fluox vs Imip .015

Adverse event group: Sedating (n=number of patients who reported a sedating event)

Drug	N	n(%)	Pomparison	D-110 1
Fluox Imip Plac Total	235 238 225 698	62(26) 78(33) 25(11)	VSimultaneous Fluor vs Plac Imip vs Plac Fluor vs Imip	D-value .000 .000 .000

Adverse event group:

(n=number of patients who reported an activating event but not a sedating event)

Drug Fluox Imip Plac Total	N 235 238 225 698	n(30 50(31) 30(16) 10(15)	A CONTRACT OF THE PARTY OF THE	Comparison Simultaneous Fluox vs Plac Imip vs Plac Fluox vs Imip	<u>p-value</u> .165
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Adverse event group: Sedating Only (n=number of patients who reported a sedating event but not an

Drug Fluox Imip Plac Total	N 235 238 225 698	n(%) 33(14) 60(25) 20(9)	Comparison Simultaneous Fluox vs Plac Imip vs Plac Fluox vs Tmip Fluox vs Tmip Conparison D-value .000 .000
			O . O.

Adverse event group: Mixed (n=number of patients who reported an acting event and a sedating event)

Drug	N	n(%)	6,0	
Fluox Imip Plac Total	235 238 225 698	29(12) 18(8) 5(2)	Simul rangous Fluox vs Plac Imip os Plac Fluox vs Imip	.000 .000 .008 .082

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TABLES OF PERCENTAGES PATIENTS WHO DISCONTINUED DRUG

Adverse event group: Activating (n=number of patients who discontinued drug due to an activating event) Drug N n(%) Comparison Fluox 235 15(6) p-value Simultaneons 808 Imip 238 13(5) Fluox vs Plac Plac 225 2(1) Imip ve Plac Total 698 Fluoxavs Imig Adverse event group: Sedation (n=number of patients who discontinued drug due to a sedating Drug N n(%) Companison Fluox 235 13(6) p-value Simultaneous .000 Imip 238 28(12) Fruck vs Plac .005 Plac 225 2(1) Amap vs Plac .000 Total 698 Puox vs Imip Adverse event group:

Adverse event group: Activating Only (n=number of patients who discontinued drug due to an activating event but not a sedating event)

Drug Fluox Imip Plac Total	N 235 238 225	200 (200 (200 (200 (200 (4)	
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Comparison	p-value
Simultaneous	.074
Fluox vs Plac	
Imip vs Plac	
Fluox vs Imip	

Adverse event group: Sedating Only (n=number of patients who discontinued drug due to a sedating event but not an activating event)

Drug Fluox Imip Plac Total	N 235 238 225 698	n(%) 8(3) 24(10) 2(1)	Comparison p-value Simultaneous .000 Fluox vs Plac .064 Imip vs Plac .000 Fluox vs Imip .004
			0 0v

Adverse event group: Mixed (n=number of patients who discon Shued deb due to an activating event and a sedating event)

Drug	N	n(%)	Comparison	
Fluox	235	5(2)	Simultaneous	p-value .104
Imip Plac	238	4(2)	Fluox vs Plac Imip vs Plac	
Total	698		Flags vs Imip	

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TABLES OF PERCENTAGES FOR INDIVIDUAL ADVERSE EVENTS

Adverse ev	ent	group:	1	Nervousnes	ss
(H-Humber	OI	patients	who	reported	nervousness)
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Drug N n(%) Fluox 235 41(17) Imip 238 31(13) Plac 225 20(9) Total 698	Comparison D-value Simultaneous .025 Fluox vs Plac .007 Imip vs Plac .155 Fluox vs Imip .181
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Adverse event group: Anxiety (n=number of patients who reported anxiety)

Drug	N	n(%)	\$ 70mm	
Fluox	235 238	23(10)	Comparison Simultaneous	p-value
Plac	225	9(4)	Fluo vs Plac Imagovs Plac	.015
Total	698		From vs Imip	.351

Adverse event group Insomnia (n=number of patients who reported insomnia)

Drug Fluox Imip Plac Total	N n(3) 235 34 4 238 24010 225 19 7		Comparison Simultaneous Fluox vs Plac Imip vs Plac Fluox vs Imip	<u>p-value</u> .036 .011 .255 .146
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Adverse event group: Agitation (n=number of patients who reported agitation)

Drug N n(%) Comparison p-val	
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Adverse event group: Somnolence (n=number of patients who reporter somnolence)

Drug	_N	n(%)	
Fluox	235 238	47(20) 65(27)	Comparison p-value Simultaneous .000 Cluox vs Plac .000
Plac Total	225 698	18(8)	Imip Plac .000 Fluox s Imip .061
			20 A S

Adverse event group: Asthenia (n=number of patients) who reported asthenia)

Drug Fluox Imip Plac Total	N 235 238 225 698	n(%) 25(1) 21(4)	College College	\$0°	Compari Simulta Fluox v Imip vs Fluox v	neous s Plac	p-value .024 .007 .035 .505
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October 12, 1989

To: C.M. Beasley cc: J.C. Bosomworth B.E. Dornseif

Per your request, the questions discussed in the September 19, 1989 meeting with you, Bruce Dornseif, Janet Bosomworth and me were addressed. The topics discussed during this meeting were outlined by Jacet and are attached. In this outline, three questions were listed and reports for two and three are provided. (You may be able to answer question one three are provided. (You may be able to answer question one after looking over the results for questions two and three.) If you have any questions, or would like to discuss anything with us, feel free to @11.

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Ja M.E. Sayler (6-9039)

'Minutes' of the meeting with C. Beasley, J. Bosomworth, M. Sayler, and B. Dornseif (9/19/89)

Adverse events of interest:

Activating:

Nervousness

Anxiety Agitation Insomnia

Sedating:

Somnolence Asthenia 5 St

(See attached for various combinations of interest with respect to these key events.)

Study of interest: Three-cell and (HCAF). Drop investigator 7 from all analyses; include investigator 2.

Variables of interest from scatistic and data set (STAT.FLUOX): PROJ, INV, PATIENT, VISIT, DRUG, AGITATED, RETARDED, HAMDTOT. For now we can use HAMDTOT but may later add HAMDANX and/or HAMDREDA and Inclividual items.

Variables of interest from the TESS data set (GEN.TESSEVNT): PIP, AECLTERM, and DREGDISC (Enose six specified above). 'Strip' PIP to create PROJ, GNV, and PATIENT. This data set will be used to obtain information on whether a patient reported any of the events of interest at least once.

Variables of interest from the TESS data set (multiple observations per patient per TESS) (GEN.ADVREMAP): PIP, AECLTERM, SEVERITY, VIS. DRUGDISC, TOTDAYS. Again, 'strip' pip. Also, rename VIS. VISIT to match statisticians data

We have thee questions to answer:

- Oxerall, sarug activating or sedating?
- 2. Coes position on Continuum between activating and sedating associate with efficacy?
- 3. Does position on continuum associate with reports/discontinuations of activating/sedating TESS events?

Addressing question 3. first: Identify patients who are AGITATED, RETARDED or neither AGITATED nor RETARDED. Identify the adverse events (TESS) of interest and present proportions of patients in each treatment group (Fluoxetine, imipramine and placebo) who reported these events. Look also at discontinuations. Do not address severity, duration, etc. at this time.

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Question 2 deals with efficacy within/between treatments and the subtypes identified by AGITATED and RETARDED or neither. We want to use only patients who have been exposed to drug for a minimum of 4 weeks (Visit 6 on the database). We can start by looking at HAMDTOT and branch out to include other

Question 1 needs some investigation. We can discuss this as we complete work with questions 2 and to perhaps we can answer this with information gleaned from those data.

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Association of the Classification as Agitated, Retarded or Neither with Efficacy Pluoxetine vs. Imipramine vs. Placebo (Question 2)

Data from the three-cell study in depression (project HCAF) is used to determine whether or not a patient's classification as agitated, retarded or neither is associated with the efficacy of the drug. Efficacy was measured by the difference of the HAMD total at baseline from the HAMD total at endpoint. Associations for all three treatments (fluoxetine imipramine and placebo) are studied. Investigator 7 was dropped from all analyses. Of the remaining patients, seven were dropped because they were classified as both agitated and recarded, and one patient was dropped because he was not classified. Hero, patients who dropped out of the study before disit 6 were dropped. Thus, data from 441 patients were used for the analyses. The information included for these patients for this report is:

-the drug the patient and taken -the agitation/retardation category of the patient at visit 2 (agitated, Otarded or neither) -the HAMD total at Wisit 2 (Baseline)

-the last HAMD total available of visits 6, 7 and 8

-the difference & base the from endpoint (Delta)

For each drug and agitation/retardation category the Wilcoxon signed that test was done to test if the mean of delta is zero. The means and standard deviations of delta, as well as the baseline and endpoint totals, are given in the tables. An asterisk follows the mean of delta if it significantly different from zero (p. 05).

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Ta	DI	es:	of	Mea	no

Catoron	or hearts	
Drug W Baseline(STD) Fluox 31 Imip 32 Plac 20 28.8 (4.3) 28.2 (5.9)	Endpoint(STD) 13.1 (7.7) 13.9 (9.8) 16.8 (8.6)	Delta(STD) -14.2 (7.9) * -14.9(10.3) * -11.4(10.1) *
Category: Drug Fluox Inip Plac 43 Rerected Baleline(STD) 80.5 (4.9) 26.3 (4.8) 25.1 (3.6)	Endpoint(STD) 11.7 (8.1) 12.2 (9.1) 14.8 (8.5)	Delta(STD) -14.8 (9.1) * -14.1 (9.7) * -10.3 (9.3) *

Categor	ry:	Neither		
Drug Fluox Imip Plac	83 83 64	D1	10.3 (6.5)	Delta(STD) -16.8 (7.5) * -16.5 (8.2) * -10.1 (8.9) *

The analysis of variance which was done on the ranktransformed data for delta is given below. The p-values for each effect in the model are reported.

Analysis of Variance

Effect	p-value
Drug	.0001
Category	.3703
Drug*Category	.6590

Since the drug effect was signiffeant, pairwise comparisons were done to detect which drugs are different. The mean HAMD totals comparison are listed pelow.

Drug Fluox	N 161	Baseline(STD)		Delta(STD)	
Imip	153	27 8 (5)	11.2 (7.3)	-15.7 (8.1)	
Plac	127	27.8 (5.5) 26.3 He 8)	12.3 (8.5)	-15.5 (9.0)	*
	-	0.99	15.9 (8.4)	-10.4 (9.2)	

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Comparison Coelta	C C C C C C C C C C C C C C C C C C C
Imip vs Roacebo A	0001
Fluox Fimip	9885
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Association of the Classification as Agitated, Retarded or Neither with Activating and/or Sedating TESS events Fluoxetine vs. Imipramine vs. Placebo (Question 3)

Data from the three-cell study in depression (project HCAF) is used to determine whether or not a patient's classification as agitated, retarded or neither is associated with the occurrence of an activating and/or a sedating TESS event. Associations for all three treatments (fluoxetine, imipramine and placebo) are studied. Investigator 7 was dropped from all analyses. Of the remaining patients, seven were dropped because they were classified as both agitated and retargled, and one patient was dropped because he was not classified. Thus, data from 698 patients were used for the analyses. The information included for these patients for this report is:

- the drug the patient hat taken Cool

- the agitation/retardat On category of the patient at visit 2 (agitated, referded of heither)

- the occurrence of activating and sedating events - whether or not the patient accontinued drug due to an activating or sedating event

The specific events of Onteres are:

Activating:

Nervousness

Anxiety

Agrication A

Impomnia -

Sedating:

Somnolencev Sthenia

Since space patients reported combinations of these events, different and erse event groups need to be defined to keep interpretations of the data clear. The group names and definitions used are:

Activating:

one or more of the activating events and possibly one or both of the sedating events.

Sedating:

The or both of the sedating events and spossibly one or more of the activating events.

Activating Onl

one or more of the activating events but neither of the sedating events

Sedating Only:

one or both of the sedating events but not any of the activating events

Mixed:

one or more of the activating events and one or both of the sedating events

For each of these adverse event groups, a table of percentages is presented. The percentage of patients who reported an event or set of events in the adverse event group is given for each drug, agitation/retardation category and the given for each drug, agitation/retardation category and the combinations of drug and category. The number of patients who were in the study and in a particular cell is given by N. The number of patients out of N who remoted an event or set of events in the adverse event groupoffs given by n; the percentage given in parentheses after n. Mables of percentages are also given for those patients who discontinued drug due to an event or events in the group. Finally tables are given for the percentages of occurrences of the individual events that make up the groups.

For each adverse even group and drug combination, a chi-square test was done to test the hypothesis that the occurrence of the event or events in the group is independent of the

square test was done to test the months is independent of the occurrence of the event or events in the graph is independent of the patient's agitation/retardation/stegory. The p-values for these tests are given in the mast column of the tables.

TABLES OF PERCENTAGES

Adverse event group: Activating (n=number of patients who reported an activating event)

Drug	_N	gitated n(%)	N N	either	Retardeg		Total	
Fluox Imip Plac Total	39 48 38 125	16(41) 11(23) 7(18) 34(27)	128 135 123 386	47(37) 32(24)	68 16924) 55 (24) 64 (1(17) 187 40(21)	235 235 238 698	79(34) 56(24) 39(17)	10 .99 .98

Adverse event group: Sedating (n=number of patients who reported a regating event)

Drug	Ac _N	n(%)	Neither R	Salded	Т	otal	
Fluox Imip Plac Total	39 48 38 125	10(26) 14(29) 5(13)	128 16(28) 65 135 8(28) 55 123 14(11) 64 386 88(22) 9 187	61 01	N 235 238 225 698	n(%) 62(26) 78(33) 25(11)	.03

Adverse event group Activating Only (n=number of patients who reported an activating event but not a

Drug N W/8 Fluox 39 071(2)	d Weither	Retarded N n(%)	Total	400000
Fluox 39 71 (28 Imip 48 9(15 Plac 78 6(14 Total 26 26(21	0135 21(16) 123 18(15) 386 69(18)	68 9(13) 55 8(15) 64 10(16) 187 27(14)	N n(%) 235 50(21 238 38(16 225 34(15 698	.83

Adverse event group: Sedating Only (n=number of patients who reported a sedating event but not an activating event)

Drug	Aq _N	ritated n(%)	Ne N	n(%)	Re	tarded		otal	
Fluox Imip Plac Total	39	5(13) 12(25) 4(11)	128 135 123	19(15) 27(20) 11(9)	55 64		N 235 238 238 256	n(%) 33(14) 60(25) 20(9)	p-value .93 .03 .90

Adverse event group: Mixed (n=number of patients who reported an activating event and a sedating event)

564461	Ag	itated	Neither		afded			ч а
Drug Fluox	_N39	n(%) 5(13)	N ES	Y N	7 n(%)	N	otal n(%)	p-value
Imip Plac	48	2(4)	135	8) 4 55	7(10) 5(9)	235	29(12) 18(8)	.83
Total	125	8(6)	3865 31	2) 34	1(2)	225	5(2)	.59
			.0	Se de	13(/)	698		
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TABLES OF PERCENTAGES PATIENTS WHO DISCONTINUED DRUG

Adverse event group: Activating (n=number of patients who discontinued drug due to an activating event)

Drug	Ag_N	itated n(%)	Ne N	ither	Retarded Total
Fluox Imip Plac Total	39 48 38 125	3(8) 3(6) 1(3) 7(6)	128 135 123 386	9(7) 6(4) 0(0) 15(4)	68 3(4) 235 15(6) .73 550 4(7) 238 13(5) .71 1(7) 225 2(1) .25

Adverse event group: Seda ng (n=number of patients who discontinued drug due to a sedating event)

	. Ag	itated	Neither	A Fet	arded			
Drug	_N_	n(%)	N. n(%)	49N	n(%)	N. I	Cotal	
Fluox Imip Plac Total	39 48 38 125	1(3) 7(15) 0(0) 8(6)	128 9(7) 14(18) 14(18) 25(3) 2 186 25(36)	9 68 55 64 187	3(4) 7(13) 0(0) 10(5)	235 238 225 698	n(%) 13(6) 28(12) 2(1)	.50 .72 .43

Adverse event broup: Activating Only (n=number of patients the discontinued drug due to an activating event but not a sedating event)

Diug n(%) N	ither	N	arded n(%)	N T	otal	p-value
Imip 78 2 135 Plac 38 3) 123 Total 125 5) 366	5(4) 3(2) 0(0) 8(2)	68 55 64 187	2(3) 4(7) 1(2) 7(4)	235 238 225 698	10(4) 9(4) 2(1)	.48 .25 .25

Adverse event group: Sedating Only (n=number of patients who discontinued drug due to a sedating event but not an activating event)

Drug	Ag _N	itated n(%)	N∈ N	ither n(%)	Retarded	- 7	otal	
Fluox Imip Plac Total	39 48 38 125	1(3) 6(13) 0(0) 7(6)	128 135 123 386	5(4) 11(8) 2(2) 18(5)	68 2(9) 55 79(3) 64 9(0) 187 9(5)	235 238 238 885 898	n(%) 8(3) 24(10) 2(1)	.89 .52 .43

Adverse event group: Mixed (n=number of patients who discomfinued drug due to an activating event and a sedating event)

event			ng event)	200	Code of	iue to	an act	ivating
Drug	N	n(%)	Neith	Re	arded	To	otal	
Fluox	39 48	0(0)	128	3)	7 n(%) 1(1)	N 235	n(%) 5(2)	p-value .45
Plac	38	0(0)	123000	(2) 455	0(0)	238 225	4(2)	.54
10041	125	1(1)	3860 7(30 9187	1(1)	698	0(0)	
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TABLES OF PERCENTAGES POR INDIVIDUAL ADVERSE EVENTS

Adverse event group: Nervousness (n=number of patients who reported nervousness) .

Drug	Ac _N	jitated n(%)	Ne	ither	Retard	7	otal	
Fluox Imip Plac Total	39 48 38 125	11(28) 7(15) 6(16) 24(19)	128 135 123 386	21(16) 15(11) 6(5) 42(11)	68 0 (13) 55 0 (16) 640 8 (13) 183 26 (16)	38 225 698	n(%) 41(17) 31(13) 20(9)	<u>p-value</u> .13 .58 .06

Adverse event group: Anxiety (n=number of patients who reported anxiety)

Drug	Ag _N	itated n(%)	Neither	Reparded	7	Cotal	
Fluox Imip Plac Total	39 48 38 125	3(8) 3(6) 1(3) 7(6)	128 (9) 135 9(7) 120 4(3) 38 25(8)	98 8(12) 55 2(4) 9 64 4(6) 187 14(7)	N 235 238 225 698	n(%) 23(10) 14(6) 9(4)	.77 .72 .55

Adverse event group: Insomnia (n=number of pattents whovreported insomnia)

<u>Drug</u> Fluox	Agitated N (%)	Meither n(%)	N	arded n(%)	N T	otal n(%)	p-value
Imip Plac Total	5(10) 2(5) 35 13(10)	28 24(19) 135 15(11) 123 13(11) 386 52(13)	68 55 64 187	4(6) 4(7) 1(2) 9(5)	235 238 225 698	34(14) 24(10) 16(7)	.05 .73 .07
8							
		7					

Adverse event group: Agitation (n=number of patients who reported agitation)

Drug	Ag _N	itated n(%)	Ne	ither	Retarded	Total	
Fluox Imip Plac Total	39 48 38 125	0(0) 0(0) 0(0) 0(0)	128 135 123 386	1(1) 0(0) 0(0) 1(0)	N n(%) 68 0(67 55 00(9) 64 (00) 187 0(0)	N n(%) 235 1(0) 238 0(0) 225 0(0)	.66

Adverse event group: Somnolenger (n=number of patients who reported somnolenger

Drug	_N	n(%)	N	Neither	Reta	anded		Total	
Fluox Imip Plac Total	39 48 38 125	7(18) 12(25) 2(5)	128 135 123 386	35(24) 16(8) 192(19)	6	11(16) 20(36) 6(9) 37(20)	N 235 238 225 698	n(%) 47(20) 65(27) 18(8)	.53 .23 .76

Adverse event group:

(n=number of patients who reported asthenia)

Drug Fluox Imip Plac Total	Agitated N n(%) 39 308) 48 94 8) 38 9 8) 125 90(8)	Neither N (1) 128 914(11) 139 10(7) 6(5) 66 30(8)	Ret N 68 55 64 187	8(12) 7(13) 0(0) 15(8)	N 235 238 225 698	0tal n(%) 25(11) 21(9) 9(4)	p-value .80 .50 .11
Ċ							