

Current Attitudes, Beliefs, and Practices of Psychiatrists
Towards ECT in Treating Severe Depression in Northern California

By

Deborah Thorpe Rana

B.A. (University of California at Davis) 1989

THESIS

Submitted in partial satisfaction of the requirements for the degree of

Master of Science

in

Health and Medical Sciences

in the

GRADUATE DIVISION

of the

UNIVERSITY OF CALIFORNIA at BERKELEY

Approved:

Chair:

Gerald A. Updegraff *22 May 1992*
Date
Robert N. Bellah
Thomas R. Kuehner
Guy Nicot

*For My Husband, Tariq, precious, tender, loving
and close to my heart*

Acknowledgments

"Take time to smell the roses"

When I was admitted to this program, I received a short note in the mail. It said, "While you're in medical school don't forget to take time to smell the flowers." This note was from my parents. I wish to thank them first, since without their support I would not be who I am and where I am now. I thank also my brothers, Dan and Joey, and my sister, Juliet for their love.

I wish to thank members of the Joint Medical Program for making these three years such a special experience filled with growth and fond memories. Ronnie, Dyanna, Maggie, Bette, and Mary Rita- all are wonderful staff members who provided me with pertinent information and encouragement at every step of this process.

To my teachers and mentors at the JMP, in particular, Ann Stevens and Guy Micco: thank you for believing in our class and helping us believe in ourselves, and for treating our theses with importance.

A special thanks to my classmates: Chris, for her support and friendship throughout the program; Debra, for seeing the bright side of things and for caring; Michael, for meaningful discussions about life and how to struggle to make this world a better place; Sujay, for his friendship; Ken and Kent, for frisbee, encouragement and our study group; Bill, for always being there to turn to; Ross, for his jokes and appreciation of culture; Tracey, for reminding us how to have fun; and Sarah, for teaching me how to enjoy working hard and playing hard. I also thank other students in the program, the first and second year students, and Maria for being such a friend, and Randy Stafford for warm words of advice and encouragement.

I extend my thanks and appreciation to my thesis committee members, Tommie Kushner for inspiration and help all along the way, Robert Bellah for believing in the thesis and for wanting to be a part of it, Guy Micco for being a mentor and a friend, and my chair, Robert Mendelsohn for his time and patience in teaching me how to analyze interviews and encouraging me to grow through this thesis project. I wish also to thank Reese Jones at UCSF for his excitement and help in getting this project started.

Thanks to our friends Nusrat and Jalil, Roxanna and Saleem, and our sister, Habibe, for keeping up the social activities and making us feel we are part of the family.

To my second family, Tariq's mother and father, and our sisters, Saima and Sadia, and our brother, Tahir, and Sohail: your love and acceptance is an inspiration to me.

And most of all, I wish to thank Tariq, whose love and support make life worth living for.

"In the coming century science faces two most important challenges: mapping the human genome and understanding the complexity of the human brain."

-Francis Crick

The tulips are too excitable, it is winter here.
 Look how white everything is, how quiet, how snowed-in.
 I am learning peacefulness, lying by myself quietly
 As the light lies on these white walls, this bed, these hands.
 I am nobody; I have nothing to do with explosions.
 I have given my name and my day-clothes up to the nurses
 And my history to the anaesthetist and my body to the surgeons.

I didn't want any flowers, I only wanted
 To lie with my hands turned up and be utterly empty.
 How free it is, you have no idea how free-
 The peacefulness is so big it dazes you,
 And it asks nothing, a name tag, a few trinkets.
 It is what the dead close on, finally; I imagine them
 Shutting their mouths on it, like a Communion tablet.

-Silvia Plath, from Tulips

INTRODUCTION

Depression is considered the most common mental health problem in the United States. Studies indicate that at any given time about five percent of the population can be diagnosed as having major depression and about ten percent of the population will experience a major depression during their lifetime.¹ Major depression is diagnosed by severe clinical symptoms which include psychological and physiological disturbances. Table 1 lists the diagnostic criteria for major depression according to DSM-III-R.² A recent report in the Journal of the American Medical Association suggests rates of depression are increasing not only in the United States, but also in Sweden, Germany, Canada and New Zealand.³

This widespread and increasing incidence of depression is paralleled by heightened interest in a number of disciplines to understand what is clearly a complex and multifaceted experience. One author notes that "the progress made in the study of the major affective

disorders during the past decade is unmatched by that in any other area of psychiatric research... Our knowledge about these disorders has expanded exponentially, and our understanding should continue to grow. Yet, with all these recent advances, there is still no answer to the question: what causes these disorders?"⁴ Depression by its nature is both psychological and biological and since human beings are social beings, it is also sociological. To attempt to understand its manifestations and etiologies is to try to grasp how the mind and body interface. In attempting to unravel what depression is and where it comes from, we are forced to examine not only the biology of the brain but also what makes a human being able to function in society and subsequently to raise the question of what might cause a human being to become psychologically non-functional. Yet in the face of the explosiveness of everexpanding knowledge of the human mind's complexity, we seem to come closer to the realization of the unknowableness and the limitless nature of reality.

Table 1 DSM-III-R diagnostic criteria for major depressive syndrome
(at least 5 of the following symptoms present during a 2-week period)

1. Depressed mood
2. Loss of interest or pleasure
3. Significant weight loss or weight gain
4. Insomnia or hypersomnia
5. Psychomotor agitation or retardation
6. Fatigue or loss of energy
7. Feelings of worthlessness or excessive, or inappropriate guilt
8. Diminished ability to think or concentrate
9. Recurrent thoughts of death, recurrent suicidal ideation

Part of the gap in understanding depression stems from the fragmentation of knowledge into different disciplines and the lack of communication between these disciplines. In The Good Society, Robert Bellah et al. suggest that this lost coherence in learning and education is a phenomenon characterizing our entire educational system. They recommend that "...we must recover an enlarged paradigm of knowledge, which recognizes the value of science but acknowledges that other ways of knowing have equal dignity."⁵ Stephen Toulmin suggests we are entering a new phase in Modernity where the falseness of the claim that there is an intrinsically simple order in all things is becoming evident. To solve human problems, he argues, we must humanize science and technology and reappropriate the aims of practical philosophy in such a way that we no longer ignore that human experience is unavoidably complex.⁶ I would argue that striving for the enlarged paradigm suggested by Bellah and his colleagues is the key for how we can best deal with the complexity of our current state of knowledge concerning mental illness. In so doing, we are admitting the limits of natural science and validating the truths of the social sciences and humanities. Applying Bellah's idea to the study of depression requires developing a model which offers a framework incorporating psychoanalytic, behavioral, and biological theories. Such a unifying framework requires a balance of the cognitive, social, behavioral and biological factors contributing to the precipitation and manifestation of depressive illness.

Current treatment practices and approaches to depression as a mental illness, show that each treatment operates on separate theories and is advocated by different groups of people. The apparent success of physical treatments (such as pharmacotherapy and ECT) has increasingly shifted psychiatry toward a biomedical model of mental illness. In addition, George Engel, professor of psychiatry and medicine at the University of Rochester School of Medicine, claims that psychiatrists adhere to the biomedical model to validate psychiatry as a medical subspecialty. He warns that the reductionist thinking

inherent in the biomedical model is particularly harmful when it neglects the impact of nonbiological circumstances upon biological processes. The failure of the dominant model of disease to take into consideration the social, psychological, and behavioral dimensions of illness is part of the crisis in modern medicine. Engel argues for the adoption of a new model of disease, the biopsychosocial model which attempts "...to broaden the approach to disease to include the psychosocial without sacrificing the enormous advantages of the biomedical approach."⁷ Engel "postulates that a biochemical or biophysical defect, while a necessary condition of disease, is not by itself sufficient to explain the human experience of illness. In this model, psychological, social, cultural, and biological factors are all viewed as crucial."

Applying this approach to the study of depression, Paul Bebbington suggests that "the path forward must therefore lie through studies of the relative effects of several causes... studies should ideally be multidisciplinary, examining social and biological factors together."⁸ In other words, to achieve an integrative model of depression, we must bring biological findings to the next level. We must question how biology interfaces with human cognition and experience. A theory of depression adapted to the 21st century must inquire into the *relationships* among key areas such as behavior, emotion, and physiology.

There will undoubtedly be obstacles in struggling to build a more integrative model of depression. Docherty and his colleagues state that the key obstacle in integrating psychotherapy and pharmacotherapy "...involves a distinction between relating to the patient as a diseased organ or object of study (subject-object mode) or as a disturbed person (subject-subject mode)", suggesting that psychobiological integration is possible but requires a balanced "bimodal relatedness."⁹ Gill explains this dichotomy in terms of the "reaction" and "proaction" models of clinical care. "The reaction model emphasizes the patient as a passive recipient of a treatment, be it pharmacological or behavioral; the

proaction model, by contrast, focuses on the patient as collaborator in the therapeutic process, responsible for attempting to understand the conscious or unconscious factors that may be motivating dysfunctional behavior."¹⁰ Dr. James Grier Miller explains that the difficulty in simultaneously treating a patient with drugs and psychotherapy lies in "conceptualizing the two kinds of therapy in a single, integrated approach."¹¹ Miller has helped formulate "living systems theory" as a conceptual system for examining contributing factors in disease causation. The central idea of general living systems theory is that interrelated pathologies exist at all levels (i.e. cell, organ, organism, group and family) and strategies for achieving desirable change can be applied at any or all of these levels. By considering all levels of function simultaneously the psychiatrist can better integrate biological treatment with psychotherapeutic modalities.

What Are The Current Biological Theories of Depression?

In general, the biological theories examine the cognitive defects and disturbed mood seen in depression and try to offer explanations for these based on the hypothesis that the neural pathways that produce normal cognitive function and mood are impaired and downregulated. This impairment is secondary to a lack of neurotransmitters in certain areas of the brain.

The biological literature on depression has mainly focused on the monoamine neurotransmitters noradrenaline, dopamine, and serotonin (5-hydroxytryptamine). (Noradrenaline and dopamine are catecholamines and serotonin is an indoleamine.) The general term for the neuroendocrine theories of depression are the "monoamine hypotheses of depression" and subtheories under this general category are the "dopamine hypothesis", the "catecholamine hypothesis" (involving mainly noradrenaline), and the "indoleamine hypothesis".

Studies of the psychomotor function of depressed patients show that they are deficient in the abilities which seem to be subserved by two dopamine pathways. Namely, they have slowed reaction times indicating an inability to initiate responding and are most severely impaired in tasks requiring a sustained expenditure of effort. Thus decreased dopamine function could mediate two of the cognitive changes of depression. (Dopamine hypothesis).

Noradrenaline and the dorsal bundle function in maintaining concentration and effort. Noradrenaline function is disrupted by stress. Thus altered or abnormal noradrenaline function could serve as a mechanism mediating the debilitating effects of stress on performance. In depressed patients catecholamine turnover (norepinephrine and epinephrine) is low. This might cause the mood alteration we call depression. Consistent with this hypothesis, drugs such as the monoamine oxidase inhibitors which increase synaptic transmission of catecholamines are effective antidepressants. (Catecholamine hypothesis).

In 1960 it was reported that the cerebrospinal fluid of depressed patients showed a reduced level of substances related to serotonin. Depletion of serotonin prevents the mitigation of the effects of prolonged stress. Such a depletion results in anger and aggression and an inability to relax. (Indoleamine hypothesis).

In summary, the monoamine hypothesis of depression is that there is a deficiency of noradrenaline, dopamine, and/or serotonin at receptor sites of functional importance in the brain. Monoamine oxidase inhibitors serve to elevate these levels by inhibiting the enzyme, monoamine oxidase, important in their degradation. Tricyclic antidepressants

serve to elevate levels of these neurotransmitters in the synaptic cleft by blocking their reuptake.

Evidence For Combining Treatment Modalities

Studies indicate an increasing use of medication in combination with some form of psychotherapy. Myrna Weissman, Professor of Psychiatry at Yale University, reviewed the four studies that had been done as of 1979. All four studies showed the superiority of combined treatment over a control group or over either treatment alone.¹² In none of the studies were there negative interactions in combining drugs with psychotherapy. According to Weissman, "psychotherapy seemed to have its effect on social and interpersonal areas and had a slower onset of action. Drugs had their effect on vegetative symptoms of depression, such as sleep and appetite, and had a more rapid onset of action."

In the same review article, 9 studies tested the efficacy of psychotherapy in comparison with control groups. The five types of psychotherapy were represented (cognitive, behavioral, interpersonal, marital and group therapy) and all the studies supported the superiority of psychotherapy compared to a control group. In a 1990 review article of controlled outcome research of psychotherapy, Robinson et al. concluded that the research evidence demonstrates that the benefits of psychotherapy for depression are not short-lived since improvement at post-treatment was similar to that observed at a later follow-up.¹³

Why Examine Electroconvulsive Therapy?

In this thesis I will focus our attention on electroconvulsive therapy (ECT) as one form of treatment for depression. Looking at ECT in an attempt to grasp its limits and uses

in the treatment of depression may be instructive in a number of ways. First, certain aspects of convulsive therapy epitomize the way biological psychology attempts to treat depression; that is, as a biological brain imbalance that must be restored as quickly and effectively as possible. The aim is to remove the dangerous signs and symptoms of depression without healing the causes of this imbalance or to dismiss them as "endogenous" (completely biological) in origin. The increasing popularity of ECT in recent years marks the movement towards a purely biological approach taking precedence over psychological and social theories of depression.

In focusing on the rapidity of ECT to remove severe symptoms of depression in certain cases, clinicians permit important questions to go unanswered; for example: 1) What factors caused the depression? 2) If ECT resolved the symptoms, does this imply the causes were purely biological? 3) What are the effects of ECT? Do these effects remove the factors causing the depressive episode? If not, will the precipitating factors result in a return to the depressive state through relapse or recurrence?

While the rapidity with which ECT alters the individual's depressive state has been widely researched and is widely accepted, the rate of relapse is often ignored. From Harold Sackeim's point of view, "...the most pressing clinical question is not whether ECT works, but how best to prevent relapse."¹⁴ He cites the relapse rate following the discontinuation of antidepressant medications to be approximately 50% and suggests that ECT has about the same relapse rate. Sackeim explains the finding is in accord with the idea that "somatic treatment suppresses expression of the affective episode, but that the underlying neurobiological abnormality persists until there is spontaneous remission." He also cites available evidence that continuing the same antidepressant medication patients had responded to during the acute phase reduced relapse rates after a course of antidepressant medications from 50% to 20% in the ensuing 6 months. The standard view, according to

Sackeim, is that administering tricyclic antidepressants or monoamine oxidase inhibitors following ECT similarly reduces relapse from 50% to 20% in the ensuing 4-6 months. He notes, however, that the term "relapse" only refers to the occurrence of symptoms within several months after treatment, and "recurrence" is an episode following a sustained period of remission eg greater than six months.

I would argue that the examination of the high rates of relapse depression following a course of electroconvulsive therapy or antidepressant medication may force an acknowledgement of the limits of biological treatment in relieving depressive illness. As Sackeim suggests, although antidepressant medication and ECT suppress the expression of the depressive episode in the patients whom they benefit, they are unable to remove the "underlying neurobiological abnormality." Biological theories in isolation from other theories of depression offer only one piece of the puzzle and can cause us to lose sight of the whole picture of the complexity of the human being. While ECT removes symptoms in certain patients, it does not offer a solution to the causes of depression. Despite the tremendous progress made in understanding the brain, emotions, and behavior, we are still far from understanding the interface between cognition and physiology and thus what the state of depression means. At this point in time biological theories are not sophisticated enough to link neurochemical abnormalities with a unifying diagnosis and understanding of pathology.

The History of ECT Use

1990 marks 50 years that electroconvulsive therapy has been used in the United States to treat mental illness. Early in the twentieth century there were reports of improvements in schizophrenic patients following spontaneous convulsions. For this reason, in the 1930's, the Hungarian neuropsychiatrist Lazlo Meduna used intramuscular

injections of camphor oil and other chemical agents to induce seizures in patients with schizophrenia.¹⁵ The resulting seizures proved unreliable since they were unpredictable in severity, frequency, and duration. In 1938 Ugo Cerletti and Luciano Bini developed a technique of seizure induction which involved an electric stimulus rather than a pharmacologic one. The technique was introduced to the United States in 1940 by Almansì and David Impastato at Columbus Hospital in New York City.¹⁶

By the early 1940's ECT was in widespread use, particularly in public hospitals for a number of psychiatric disorders, including affective disorders. At this time the technique was modified to reduce the adverse effects. Friedman and Wilcox in 1942 introduced the use of unilateral electrode placement and low energy stimuli as a way to decrease memory dysfunction with ECT.¹⁷ Unilateral ECT involves applying both treatment electrodes over the nondominant hemisphere, whereas bilateral ECT places one electrode over each lobe. Unilateral ECT is associated with less cognitive dysfunction than bilateral, but bilateral is reported to work faster and a smaller number of treatments are required. Bilateral and unilateral ECT also have different effects on cerebral blood flow and memory.¹⁸ Liberson in 1942, reported the use of brief pulse stimuli¹⁹, and Bennett introduced muscle relaxation in 1941.²⁰

The 1950's and 1960's witnessed a decline in the use of ECT due to the introduction of psychopharmacological treatment for major psychiatric disorders (e.g. antidepressants and antipsychotics) and publicity resulting from the abuse of ECT in state hospitals where patients were involuntarily shocked. However, it was at this time that anesthesia was introduced as part of the ECT procedure, considerably reducing the risk of pain, fracture and death.

During the 1970's and 1980's a number of scientific studies were carried out on the efficacy of ECT versus pharmacotherapy and on the adverse effects of ECT. Janicak and colleagues analyzed several controlled studies that compared the efficacy of ECT with simulated ECT, placebo and antidepressants.²¹ According to these studies, ECT had an overall efficacy rate of 77.8% (simulated ECT 27.6%, placebo 37.6%, tricyclics 64.3% and MAOIs 32%). Technological advances such as brief general anesthesia, anticholinergic medication, muscle relaxation and oxygen have made electroconvulsive therapy safer (e.g. no limb fractures) and less horrifying.²² It was at this time that ECT was shown to be efficacious primarily for affective disorders rather than for schizophrenia. Surveys of usage in the 1970's indicated a shift from primarily state hospitals to private and university hospitals, and this trend appears to continue today.²³ In addition, in the early 1970's California among other states enacted informed consent laws for ECT. In California, this requires psychiatrists recommending ECT to obtain a second opinion confirming the diagnosis, and requires the patient to sign a form outlining the risks of the procedure. If the patient is considered incompetent to consent to the procedure, a court hearing must be called before the treatment is permissible.

The use of ECT seems to have increased through the 1980's, although its application has narrowed primarily to affective disorders. A number of questions still remain about this controversial treatment: 1) Since ECT has an associated high rate of relapse after successful treatment, what maintenance therapy might prevent this? 2) While changes in neurotransmitter levels following a course of ECT have been documented in numerous studies, it is still unclear if these changes are related to the therapeutic effects of ECT as a treatment in humans. 3) What is the optimal electrode placement: unilateral or bilateral? Is it best to start with unilateral and change to bilateral for those not responding or should treatment begin with bilateral and change to unilateral for those with significant postictal confusion? 4) Should ECT be used for the treatment of Schizophrenia? 5) What

clinical signs or lab tests predict response to ECT? 5) Is the memory loss associated with ECT permanent in some cases? What factors make certain individuals more prone to longer-lasting memory impairment? 6) How does ECT work?

When Is Treatment With Electroconvulsive Therapy Indicated?

In its 1978 Task Force Report, the American Psychiatric Association stated that "ECT is an effective treatment in cases of severe depression where the risk of suicide is high and/or where the patient is not taking adequate food or fluids and / or where the use of drug or other therapy entails high risks and/or will take an unacceptably long period to manifest a therapeutic response."²⁴ In The Practice of ECT: Recommendations for Treatment, Training and Privileging, the 1990 Task Force on ECT states: "at present there are no diagnoses which should automatically lead to treatment with ECT. In most cases ECT is used following treatment failure on psychotropic agents, although specific criteria do exist for use of ECT as a first line treatment."²⁵ According to the Task Force, situations where ECT may be used prior to a trial of psychotropic agents include the need for a rapid response, the risks of other treatments outweigh the risks of ECT, a history of poor drug response or good ECT response, or patient preference.

Thus ECT may be regarded as an effective short-term treatment for severe depressions, having the advantages of a rapid onset of action, and reducing symptoms in severely depressed patients who may not have previously responded to adequate trials of antidepressant medication. The disadvantages of ECT are its high relapse rate, impaired memory function and its social stigma.

In addition to all subtypes of unipolar Major Depression, bipolar Major Depression, all subtypes of mania (Bipolar Disorder, Mania; Bipolar Disorder, Mixed; and Bipolar

Disorder, Not Otherwise Specified), and psychotic schizophrenic exacerbations with Catatonia, prominent affective symptoms, or prior history of favorable response to ECT are diagnoses for which a consensus exists about recommending ECT (1990 Task Force).

Under directions for future research, the 1985 Consensus Development Conference on Electroconvulsive Therapy recommended "...better delineation of the long-term effects of ECT on the course of affective illnesses and cognitive functions, including clarification of the duration of ECT's therapeutic effectiveness."²⁶ It is the vision of ECT as one step in the process of healing severe depression that I will now examine in greater detail.

The 1990 American Psychiatric Association Task Force on ECT suggests that the initiation of "...continuation therapy, typically consisting of psychotropic medication or ECT, is indicated for most patients following completion of the ECT course" (reference 25). The Task Force asserts that: "...psychotherapy, whether on an individual, group, or family basis, may for some patients, represent a useful component of the clinical management plan following an ECT course."

Theories of How ECT Works

The antidepressant effect of ECT is due to the grand mal seizure. A neuroendocrine mechanism of action is postulated to mediate its effects. The mechanism is thought to involve direct electrical stimulation of the diencephalon, and the hypothalamus via a transient breakdown of the blood-brain barrier and the stimulation of the release of various neurotransmitters depleted in the depressed state, thus activating various neural pathways.²⁷ Demitri Papolos summarizes the evidence for what ECT does as follows: "Animal research shows that ECT enhances dopamine sensitivity, reduces the reuptake of serotonin and activates the systems in the brain that use norepinephrine. It also increases

the amount of the major inhibitory neurotransmitter, GABA, yet much remains unclear about its mechanism of action.” (p. 118)

Bryan King and Edward Liston in a recent article on proposed mechanisms of action of electroconvulsive therapy put forward the hypothesis that "convulsive therapy is nonspecific, in essence, an environmental intervention; that nonphysiological depolarization is the operant mechanism of the induced seizure; and that pathological ratios of brain neurotransmitters are normalized by this mechanism, resulting in therapeutic benefit."²⁸ Thus it is suggested that ECT has a generalized effect on the brain by helping to normalize ratios of brain neurotransmitters through the depolarization effected by the induced seizure.

It would seem, then, that an area for future research and an appropriate question for this thesis chapter would be: what effect can restoring biological equilibrium have on the long-term goal of staving off debilitating depression and maintaining the vitally functioning and responsive human being? ECT's role may be to enable those with intractable depression (i.e. a state unreachable by any other form of treatment and where the risk of suicide is also high) to return to a state of baseline psychological function in which they can better respond to other therapies and have the energy and the concentration necessary to deal with the causes (conscious or unconscious) of the depression. ECT followed by psychotherapy enables therapists to apply in sequence, the reaction and proaction model outlined by Gill (ref. 10). In the process of receiving electroconvulsive therapy, the patient is a passive recipient of a treatment technique. By following this treatment with psychotherapy or psychoanalysis, the patient collaborates in the therapeutic process, struggling to understand the conscious and unconscious factors motivating the dysfunctional behavior. Thus we are utilizing the synergistic effects of biological treatments with psychotherapy to reduce rates of relapse and recurrence of depressive episodes.

Why Is a Survey of Psychiatrists' Attitudes In Northern California Toward ECT Particularly Timely?

ECT as an approach has been challenged since it was first introduced to this country in 1940, but it has been particularly controversial in Northern California. The 1970's saw protests by former patients and such protests continue today. 1982 marked the passage of the Berkeley referendum outlawing the use of ECT in the city of Berkeley. Though the referendum was rapidly overturned by the courts because the state has jurisdiction in health policy, it served to heighten societal concern about possible harmful effects of this treatment. For the past 15 years St. Francis was the only hospital in San Francisco offering ECT. This changed last year when three more psychiatric hospitals, St. Mary's, Langley Porter, and Pacific Presbyterian, began ECT programs. One Oakland hospital, Providence, now called Summit, and one in Berkeley, Herrick hospital, continue to make the treatment available as they have done for more than thirty years.

While there is a renewed interest in ECT in the Bay Area, controversy still exists as manifest by the resolution passed on February 5, 1991 by the San Francisco Board of Supervisors which expresses doubt about the safety and effectiveness of ECT, considers "current consent laws not adequate to advise patients of risks," "opposes use of, or financing of ECT" and "urges state legislature to strengthen informed consent laws". On November 13, 1991 the Berkeley/Albany Mental Health Advisory Board also passed a resolution on ECT which states that "...the use of ECT should be substantially reduced in the City of Berkeley, due to serious doubt that ECT is safe and effective," "that current informed consent rules do not adequately advise patients of the risks they incur by undergoing ECT treatment," and "that the City Council of the City of Berkeley hereby establishes the policy that it is opposed to the use of, or financing of, Electro-Convulsive Therapy."

Surveying attitudes of psychiatrists concerning ECT is needed for several reasons. First, by exploring the controversy or consensus of opinion existing among psychiatrists in Northern California it may be possible to assess the degree to which a "biological" approach to mental illness has come to dominate the understanding and treatment of depression. Additionally, the factors contributing to psychiatrists' attitudes about ECT, and the political aspects of these attitudes could be more effectively addressed.

Since ECT is a treatment primarily performed by psychiatrists, and has been done for half a century, it makes sense to ask them their opinions about this treatment. How widely accepted is ECT as a treatment modality in psychiatry? What influence have advances in neurochemistry had in providing an empirical treatment with a credible theoretical framework? Few studies of attitude have appeared in the literature. From 1971 to 1984 11 studies of patient and/or lay attitude toward ECT were done around the world; only one examined psychiatrists' attitudes.²⁹ From 1985-1991 there were three studies of the views and/or practices of psychiatrists regarding ECT and one survey each of the attitudes of medical students and of psychiatric residents toward ECT.³⁰⁻³⁴

Current Attitudes, Beliefs and Practices of Psychiatrists Towards ECT
In Treating Severe Depression in Northern California

Main Research Questions and Hypotheses

What are the attitudes, beliefs and practices of psychiatrists in Northern California regarding the use of ECT in treating depression? Are the numbers of psychiatrists using it increasing or decreasing? Are psychiatrists introduced to ECT during their residency more or less likely to utilize ECT in their own practice? When, if ever, is ECT considered a primary treatment of choice? What characteristics do psychiatrists who advocate ECT have in common? Is there a relationship between when and where physicians received their training and whether or not they administer and advocate its use? How do the views of psychiatrists in Northern California compare with those of psychiatrists in other states and countries? What influence has insurance company pressure for "rapid treatment" had on how depressed patients are treated?

METHODS

(i) Subjects

Psychiatrist-subjects totaling 45 were divided into three groups: (a) those who administer ECT (n=15), (b) those who refer patients for ECT (n=20) and (c) those who neither administer ECT nor refer patients for the treatment (n=10). These three groups were drawn primarily from Alameda and Sacramento counties, and adjoining localities. Names of potential subjects, psychiatrists who do and do not administer ECT, were obtained through physician contacts in these counties. An informational letter was sent to each physician, describing the study and inviting participation. While the sample of physicians was not randomly selected, a heterogeneous sample was sought, for example,

by interviewing physicians in a number of different settings (academic, rural, urban), of different ages, trained at various medical institutions, from various political and religious ideologies, and matching those administering ECT with those not administering it as much as possible.

(ii) Interview Schedule

Psychiatrist-subjects were given a semistructured interview lasting between 1/2 to 1 hour based on a questionnaire. This method was employed in a similar study of patient attitude toward ECT by Freeman and Kendell in 1980.³⁵ The interviews were carried out between June, 1990 and April of 1992.

The questionnaire contained 20 questions each with subquestions. The questions center on specific aspects of the treatment practices of subjects with regards to ECT, exposure to ECT training during residency, beliefs about the place of ECT in psychiatry, when to recommend it, and attitudes toward state regulations for ECT. The actual questionnaire follows.

(iii) Psychiatrist Questionnaire

1) Personal history: a) What is your age? b) Where did you attend medical school? c) What was your undergraduate major and which University did you attend? d) Where did you do your residency? e) How many years have you been in psychiatric practice? f) How did you choose psychiatry? g) Which models of mental illness have you been most influenced by and utilized most in your practice (e.g. behavioral, psychodynamic, biological, cognitive)?

2) What types of patients do you typically treat? (ie with what kinds of disorders, which age groups, and is your practice mainly office-based or hospital-based?)

3) a) Approximately how many patients did you treat or refer to be treated with ECT over the past twelve months? b) Since when have you been practicing or not been

practicing ECT? c) What do you think most played a role in your decision to administer/ not administer ECT in your practice? d) When did you begin deciding whether or not to give your own ECT?

4) a) What was the average number of ECT treatments given per patient during a course of ECT? b) What factors are involved in deciding how many treatments are necessary?

5) a) What kinds of maintenance therapy do you use after completion of a course of ECT treatment? b) Do you ever use maintenance ECT, if so, when do you consider it for a patient? c) What % require this?

6) a) Do you usually choose unilateral or bilateral electrode placement? b) What percentages of each? c) What determines which you use?

7) Describe some of your worst and best patient outcomes after ECT.

8) Can you tell which patients might improve from ECT and which might not?

9) a) What characteristics do you look for in patients for whom you consider ECT? b) Do you try antidepressants first before recommending ECT for a patient? c) For what other types of disorders do you consider ECT use?

10) a) What procedure do you use to obtain consent from your patients? b) How do you educate them about ECT?

11) a) Do you use caffeine or other pretreatment for ECT use? b) What % require this? c) Do you feel a seizure with caffeine works better than without?

12) Which machine do you use and with what stimulus types (sine or pulse wave forms)?

13) a) In your patients, in what areas do the most significant memory losses occur? (types of memory affected (short and long-term), recording and retrieving info, time necessary for memory impairment to clear) b) What other side effects does ECT have and how do these, in your view, compare with those of antidepressants? c) Do you see drug treatment (antidepressant medication) having any effect on memory?

14) a) How do you feel about the political side to ECT ((i) City of Berkeley referendum and (ii) state regulations)? b) What effects did state regulations have: for example, did they enhance patient treatment / better protect patient rights? c) How have state regulations affected your practice?

15) What other forms of treatment do you recommend for your depressed patients?

16) a) When were you first introduced to ECT and to what extent? b) Did you receive ECT training as part of your residency? c) During residency, what were the attitudes of your attending psychiatrists towards ECT? (Was ECT routinely performed there, did they support its use?) d) What impact, if any, did their views have on you as you were forming an opinion about ECT during residency? e) What exposure did you have to ECT in medical school?

17) What is your overall impression of ECT and its place in Psychiatry?

18) What research investigations do you feel would be important concerning ECT?

19) Have your views about ECT undergone any changes over the course of your practice? If so, what contributed to that change or what allowed your views to remain unchanged?

20) How would you describe the attitude of your current professional peers toward ECT? What impact, if any, have their views had on your own?

RESULTS

Questions 5-8 and 10-13 were used only for interviewing those who administer ECT; the remaining questions were used to interview all three groups.

1) Characterizing the Three Groups

i) Age: The mean age for those who administer ECT (n=15) was 47.80 with a standard deviation of 11.46, for those who refer (n=20) the mean age was 55.70 with a

standard deviation of 11.53, and for those who do not refer ($n=10$) the mean age was 58.90 with a standard deviation of 11.48. The three groups did not differ significantly in age, ($F_{(2,42)}= 2.66$).

ii) Location of practice: Table 1 below shows the cities in Northern California at which psychiatrists were interviewed in the three groups. The large number of subjects in the administer pool from the Sacramento area are indicative of how few doctors were administering ECT in the Bay area at the time interviewing began in 1990. Note conversely that the East Bay is more highly represented in the refer and non-refer groups.

Psychiatrists administering ($n=15$)	Psychiatrists referring ($n=20$)	Psychiatrists not referring ($n=10$)
Univ. of Calif-Davis (2)	Albany (1)	Berkeley (9)
Kentfield (1)	Berkeley (11)	Oakland (1)
Oakland (2)	Davis (1)	
Roseville (2)	Kentfield (1)	
Sacramento (6)	Oakland (2)	
San Francisco (1)	Univ. of Calif.-S. F. (3)	
Woodland (1)	Woodland (1)	

Table 1 Locations of subjects within groups

iii) Gender: the three groups each have two women in them.

iv) Undergraduate major: 28 out of 45 (62%) of the subjects had an undergraduate major which included Natural Science, the remainder majored in the Social Sciences and Humanities. In the ECT group, 73% had a major in the Natural Sciences, versus 50% among those who refer, and 70% among those not referring. (Double majors which

included a major in the Natural Sciences were included in the latter category; this occurred in one person in the ECT group and one person in the Refer group.)

v) Philosophical orientation to psychological illness: When asked about the models of psychiatric illness they were most influenced by, 79% of those who administer ECT mentioned the biological approach, this compared with 55% in the refer group and only 10% of the non-refer group. The difference among the three groups was significant to 0.01 ($\chi^2_{(2)}=11.11$).

vi) Training in ECT during residency: 68% of those interviewed had participated in administering ECT as part of their residency. In the ECT group, 87% participated, versus 53% in the refer group and 70% in the non-refer group. Differences between groups was not significant ($\chi^2_{(2)}=3.50$).

Discussion

The three groups were characterized by comparing them on the basis of age, location of practice, gender, undergraduate major, philosophical orientation to psychological illness, and training in ECT in residency. The groups differed significantly according to belief in the biological approach to mental illness. This finding could be explained by the hypothesis that in order to give a treatment surrounded with so much controversy one would have to develop a strong belief in the treatment. Another possible explanation could be that those who are more interested in and oriented toward biological approaches to understanding and treating mental illness choose to administer ECT.

2) Attitudes Toward ECT

i) Degree of support for the use of ECT: based on the response to questions 17 and 19, subjects were scored on a scale from 0 to 4 (least supportive to most supportive) by two independent judges. The correlation between the judges (r) was 0.89 which gave an interjudge reliability (α_{rel}) of 0.97. The scores obtained by the two judges were added,

giving each subject a net score from 0 to 8. The mean score for the entire group was 6.0 with a standard deviation of 1.92. The mean score for the ECT group was 7.53 with a standard deviation of 0.92, for the refer group the mean was 5.90 with a standard deviation of 1.02, versus a mean score of 3.90 with a standard deviation of 2.38 for the non-refer group. These mean values were significantly different to <0.001 ($F_{(2,42)}=20.27$). It is not surprising that the scores differ significantly from one group of users to another, since the score a subject obtains is not completely independent of group membership. For example, it is unlikely for a member of the ECT group to obtain a score less than 2 since by agreeing to give the treatment the psychiatrist is assumed to agree that ECT has a place in psychiatry. The fact that there is a significant difference between groups serves nonetheless as validation of the scale. Table 2 below demonstrates typical statements of subjects and the scores they were given.

Score	Overall impression of ECT and place in psychiatry
4	"A life-saver", "very effective", "severely depressed, treatment of choice".
3	"Has a place", "needed, useful", "valuable treatment for very limited no."
2	"Useful as a last resort when response to meds and therapy fails"
1	"Does have its effectiveness-alters emot. state. Concern: lingering effects: memory, cognition. "
0	"ECT in the best of psychiatry- wouldn't be. Reflects lack of commitment to do what people really need" "Don't believe in treating mental problems with acute brain injury"

Table 2 Typical statements of subjects and degree of support scored

ii) Age: this was not significantly correlated with attitude scale ($r = -0.25$ with 44 degrees of freedom).

iii) Undergraduate major and attitude scale: the mean attitude score among those majoring in Natural Science was 6.04 with a standard deviation of 2.25, while the mean attitude score among the Humanities/Social Science majors was 6.05 with a standard deviation of 1.27. Thus, undergraduate major is not significantly associated with degree of support for ECT.

iv) Biological orientation and attitude scale: the mean attitude score among the biologically-oriented subjects was 6.74 with a standard deviation of 1.29, while among the non-biological group this was 5.10 with a standard deviation of 2.14. Belief in the biological approach to mental illness was significantly correlated with support for ECT to the 0.01 level ($r = 0.43$, $F(1,42) = 9.72$).

v) Degree of exposure to ECT during residency and attitude scale: asked whether they had watched ECT performed or helped administer ECT during residency, 69% of subjects administered ECT, while 23% watched and 9% neither participated nor watched. Since the group unexposed to ECT was too small for analysis, we compared attitudes of those who participated in ECT with those who watched or were not exposed to it. Using the attitude scale, 50% of those who participated in administering ECT had an attitude score of 7 or 8, compared to only 7% of those who either watched or had no exposure. This difference was significant to 0.01 ($\chi^2(2) = 7.58$).

vi) Attitudes about state regulations for ECT: based on the response to question 14, subjects were given a score ranging from 0 to 3 (least supportive to most supportive) by two independent judges. The two judges were in perfect agreement. The mean score for the entire group was 1.02 with a standard deviation of 0.84. The mean score for the ECT group was 0.87 with a standard deviation of 0.83, the mean for the refer group was 1.11 with a standard deviation of 0.76, versus a mean score of 1.11 with a standard deviation of 1.05 for the non-refer group. The scale of attitude towards state regulations inversely

correlated with scale of overall attitude toward ECT ($r=-0.38$ with 41 degrees of freedom) significant to the 0.01 level.

Discussion

Attitudes toward the use of ECT significantly differed among the three groups as shown by the mean attitude scores of 7.53, 5.90 and 3.90 respectively among those who administer, refer, and do not refer. To determine factors associated with degree of support for ECT use, we assessed the effect of age, undergraduate major, belief in a biological model of psychopathology, degree of ECT training in residency and attitudes toward state regulations on attitude toward ECT. Belief in the biological model, and participation in the administration of ECT during residency positively correlated with support for ECT. These observations imply that seeing ECT done and having a belief in a theoretical basis for it reduce negative attitudes toward the treatment. Attitudes toward state regulations negatively correlate with support for the use of ECT. This finding is what we would expect because those who oppose the treatment are likely to advocate stronger consent procedures, while those who support its use are not likely to favor regulations which hinder ECT use.

3) Beliefs About ECT

i) Have psychiatrists' views of ECT changed over the course of their practice?

Table 3 indicates how and why views changed after residency.

How view has changed over practice	Psychiatrists administering (n=15)	Psychiatrists referring (n=20)	Psychiatrists not referring (n=9)
Unchanged	33%	40%	67%
More convinced with time: seeing more patients benefit	33%	35%	
Narrower and more appropriate indications for, better antidepressants lessens need for	7%	15%	22%
Technical advances have increased my respect for this treatment	7%	5%	0%
Saw the limits of psychodynamics	7%	0%	11%
Now convinced it's more good than harm	0%	5%	0%
Used to think unilateral ECT is as good as bilateral	13%	0%	0%

Table 3 Changes in beliefs about ECT since completion of residency

ii) In response to the question what most played a role in their decision to administer/not administer ECT as part of their practice, the factors mentioned by those who offer ECT were: they were trained in it and felt competent (40%), joined a group/ hospital that offered ECT (27%), strong belief in dramatic results (20%), have an interest in ECT (13%), to offer all treatment modalities(13%). Among those who refer for ECT, the reasons given for not administering ECT were: not having an active hospital practice (40%), lack of interest in ECT (40%), lack of training in residency (25%), rarity of seeing a patient for whom ECT would be considered(15%), hospital where worked does not offer ECT(15%). Among those who do not refer for ECT, their reasons for not offering the treatment were: their practice involves mainly dynamic psychotherapy (40%), they believe

the same results can be accomplished with medications (20%), clients do not include those who would benefit from ECT (20%), personal experience with negative consequences of people who have had ECT (20%).

iii) When asked what other forms of treatment they recommended to their depressed patients, psychotherapy and medication were mentioned by the majority of psychiatrists as shown below in table 4.

Treatments Recommended	Psychiatrists administering	Psychiatrists referring	Psychiatrists not referring
Psychotherapy	80%	82%	80%
Antidepressant medication	93%	76%	70%

Table 4 Recommended treatments for depressed patients

Other recommended treatments include hospitalization, exercise, nutrition, phototherapy, involvement in social activities, changing the environment, work, and psychoanalysis. All three groups of psychiatrists mentioned individual and family therapy. None of the ECT doctors mentioned group therapy, while none of the non-refer group mentioned hospitalization as a recommended form of therapy.

iv) Patient characteristics mentioned by clinicians which would lead them to consider recommending ECT for a patient are shown in table 5.

Factors For Considering ECT	Psychiatrists administering (n=15)	Psychiatrists referring (n=20)	Psychiatrists not referring (n=10)
Vegetative Symptoms	67%	40%	10%
Major depression with psychosis (e.g.delusions)	60%	10%	0%
Resistant to medication	20%	75%	0%
When All else fails	0%	25%	60%
Severe / Life-threatening	20%	20%	60%

Table 5 Factors considered by clinicians in recommending ECT for patients

Other factors mentioned include agitated depression, catatonia, patient is elderly and cannot tolerate antidepressant medication, depression is recurrent or chronic. Only two clinicians in the non-refer group mentioned they would not consider ever recommending ECT for patients.

When asked if they treat patients with antidepressants first before recommending ECT, 33% of the ECT doctors said they would, versus 60% of the refer group and 78% of the non-refer group. The remainder said they usually would precede ECT by antidepressant medications unless the depression were too severe, the patient had not responded to medications in the past, or the depression had overlying psychotic features. One member of the refer group and one member of the non-refer group do not use medications as part of their practice.

v) Beside depression, for which other disorders do psychiatrists consider ECT? 44% of those interviewed mentioned acute mania (Bipolar Disorder, Mixed or Manic), 26% Schizoaffective disorder, 23% Catatonia (Schizophrenia, Catatonic Type), 14% agitated

Schizophrenia, 9% Involutional Melancholia (Major Depression, Melancholic Type) and 21% said none.

vi) Beliefs about memory loss: 93% of the ECT group see anterograde amnesia in their patients. This type of amnesia includes three different aspects referred to by the doctors: a) intermediate memory: e.g. few weeks preceding the ECT, during depressive episode, patients appear to have trouble *retrieving* these memories; b) short-term memory: e.g. the hospitalization during the ECT treatment: patients have trouble *recording* this; c) recent memory, e.g. where are the car keys, patients have trouble *recording and retrieving* this information. Most of the psychiatrists claim the latter ability clears within 2-3 weeks after the ECT. 27% noted that random retrieval problems of retrograde (long-term) memories, while rare, may occur.

vii) In response to the question what research investigations would be important concerning ECT, the following recommendations were made: Among the psychiatrists who administer ECT, 33% want investigations into the mechanism of how ECT works (for example, do its neurochemical effects mimic those of antidepressant medication, or does ECT suppress emotionally-charged material?), 33% are interested in improving ECT technique to minimize side effects (dose, bilateral/unilateral), 27% want to know when to do maintenance ECT and how often, 27% would like research into another method to achieve the effects of ECT more simply and without the side effects, and 13% want research into short and long-term effects on memory. Among those who refer, 25% recommended long-term studies to include effects on memory, relapse and recurrence rates, comparing those who receive ECT with those who do not, and the benefits to the person's life of having had ECT; 19% want investigations into how ECT works, better characterization of who benefits from ECT, and an equal number think no more studies are necessary, while 13% want research into the harmful effects to the brain of ECT. Among the non-refer group, 50% want research into where damage to the brain occurs. Other recommendations include studies on memory, how ECT works, informed consent to

assess if patients are truly able to refuse, and psychoanalytic therapy of those having it to see what it means to them and how they feel it helped them.

Discussion

When asked how their views about ECT had changed over the course of their practice, 41% maintained the view formed during residency, 27% became more convinced of ECT by seeing more patients improve, and 14% saw its use narrow due to better antidepressant medications and more appropriate indications for its use. Technical advances, changes in technique and seeing the limits of psychotherapy were other factors responsible for change in view among the remaining 15% of the subjects.

Factors influencing psychiatrists to administer ECT include adequate training in ECT, joining a group which offers it, belief in dramatic results, interest in ECT and to offer all treatment modalities. This implies that with the exception of training and site of practice, ECT doctors are self-selective: i.e. by in large they choose to offer it. The factors influencing psychiatrists not to administer ECT but to occasionally refer patients include having a non hospital-based practice, lack of interest, lack of training, not enough patients seen appropriate for ECT, their hospital does not offer ECT. This implies that those who refer are largely not very involved with patients for whom ECT may be considered appropriate. Among the non-refer group, however, in addition to having a practice involving mainly psychodynamic therapy and psychoanalysis, and not seeing clients who might benefit from ECT, up to 40% of this group do not refer or administer ECT because of a lack of belief in its appropriateness. It is noteworthy that 40% of the ECT group practice ECT because they were trained in it and felt competent in administering it after residency. On the other hand, 25% of the refer group said they do not administer ECT because of a lack of training. This variation in exposure to ECT during residency was noted in a recent survey of psychiatry residents in Canada which found that 25.3% of

senior residents felt comfortable in their ability to administer ECT while 19.6% had administered no ECT during their residency (reference 34).

When the three groups were asked what other treatments they recommend for their depressed patients, a higher proportion of doctors who administer ECT recommended antidepressant medication. This observation is not surprising since the ECT group demonstrates the highest proportion of believers in the biological approach to mental illness.

Asked what clinical indications they look for in recommending ECT, 67% of the ECT group compared to 40% of the referers and 10% of the non-referers mentioned vegetative symptoms. 60% of those who administer ECT mentioned depression with psychotic features. This indicates that the majority of those who administer consider ECT as a primary treatment when endogenous (vegetative) symptoms or psychotic features are present. In contrast, a 75% majority of the refer group considers ECT in the face of medication-resistant depression. The 60% majority of the refer group considers ECT either when all else fails or when suicide risk is high. These findings are interesting because they demonstrate the variety of opinion existing among psychiatrists about ECT. Similar findings were obtained in a 1986 survey of Australian psychiatrists, in which 53.5% recommended antidepressant medication be combined with ECT for a case vignette of depression with psychotic features. If unsuccessful for a median period of 3.5 weeks, 62% introduced a new treatment plan; 93% of the latter now recommended ECT (reference 30).

The finding that endogenous symptoms such as early awakening, depressed mood and psychomotor retardation are the symptoms most closely associated with a good response to ECT reflects current literature on this subject.³⁶ However, some studies have

found endogenous and non-endogenous symptom clusters to be equally responsive to ECT.³⁷

The higher proportion of doctors in the non-refer and refer groups who always treat their patients with trials of medication before recommending ECT reflects their belief that ECT is mainly to be used secondary to medication and therapy. The majority of the ECT group mentioned they usually would use medication before ECT with certain exceptions. This indicates that among those who administer ECT use is considered primary in certain circumstances.

In addition to unipolar Major Depression, those interviewed consider recommending ECT for acute mania, Schizoaffective Disorder, agitated Schizophrenia, and Major Depression, Melancholic Type. All of these diagnoses are possible candidates for an ECT referral according to the 1990 ECT Task Force Report (reference 25).

Beliefs about memory loss: 93% of those who administer see anterograde amnesia as the main memory impairment associated with ECT. Of the complications reported from ECT in California in 1990, 82% involved memory impairment.

The research recommendations of the three groups show their major concerns about the treatment. For example, 50% of the non-refer group want elucidation of where and how ECT damages the brain, the refer group is concerned with the long-term effects of ECT in the areas of memory, relapse, and therapeutic impact, while the ECT group is concerned with mechanism of effectiveness, and technical aspects such as how to minimize side effects, and maintenance ECT. The minority (13%) of those who administer ECT are interested in ECT's main side effect: memory impairment.

4) Practices of Psychiatrists involved in ECT

i) Psychiatrists who administer ECT estimated the number of patients who received ECT under their care over the past twelve months. The mean number of patients was 22.87 with a standard deviation of 14.53, with a range from 4 to 50. Those who refer patients for ECT were asked to estimate the number of patients they had referred over the past twelve months. This ranged from 0 to 3 with 55% of the refer-group referring no one over the past twelve months.

ii) Those who administer ECT were asked to estimate the average number of treatments given to each patient. This value ranged from 6-14 with a mean of 9.07 and standard deviation of 2.22.

iii) When the group administering ECT was asked which factors help them decide how many treatments are necessary, 100% mentioned the patient's response and the resolution of depressive symptoms as the best predictor. 33% mentioned titrating this response against the side effects (e.g.confusion and memory impairment) was important. Other factors mentioned include: past response to ECT, diagnosis (some manics require less treatments than unipolar depression), severity and duration of depressive illness, baseline before depression and seizure response at each treatment. Some doctors stop treatment once depressive symptoms resolve, while others stop one to three treatments later.

iv) After a course of ECT, 93% said they would use medication as a maintenance therapy, 13% mentioned they would use psychotherapy, and 7% almost always use maintenance ECT. 53% said they consider maintenance ECT if symptoms recur or if the patient has a history of relapse.

v) When asked whether they choose unilateral or bilateral electrode placement, 67% of those who administer ECT begin with unilateral with certain exceptions since its memory impairment is strikingly less, while 13% use bilateral unless there is a reason not to. Using unilateral was recommended for the elderly (since they are predisposed to cognitive

impairment) and those needing to return to work. Bilateral was recommended for suicidal and anorexic patients, manic psychoses, for those who have had ECT before, for those who showed no response after 4-5 treatments of unilateral, and for those with a history of relapse. 54% of those who administer use bilateral the majority of the time, while 38% use unilateral the majority of the time, and 8% use bilateral on about half their patients.

vi) When asked which machine they use and what stimulus type, 93% use pulse wave, 73% use MECTA and 20% use Thymatron. The 7% using sine wave use MOLAC-II and have ordered Thymatron.

vii) Asked if they use caffeine pre-treatment, 73% do, 13% have used it in the past, 7% have never used it and 7% intend to use it. 60% claim it lengthens the seizure, while 13% say it decreases seizure threshold. The estimated percentage of patients requiring caffeine varied from 10% to 80%.

viii) Consent procedure and educating patients about ECT: this is shown below in table 6.

Consent procedure and educating patients	ECT group
Invite the family to discuss the treatment or speak on telephone	87%
Show ECT video by Max Fink	60%
Talk about pros, cons and side effects	53%
Read consent form with patient and answer questions	33%
Suggest books and articles about ECT	27%
Read NIMH brochure	20%
Show another video about ECT	20%

Table 6 Ways psychiatrists educate patients about ECT

Discussion

The mean estimated number of patients receiving ECT from the group who administers ECT was 22.87 with a standard deviation of 14.53. 55% of those who refer patients for ECT referred no one over the past twelve months.

The mean number of treatments estimated to have been given to each patient was 9.07 with a standard deviation of 2.22. According to the 1990 ECT Task Force Report, an ECT course generally consists of 6-12 treatments, although a plateau may occur before or after this (reference 25).

100% of the ECT group mentioned the resolution of depressive symptoms as the best predictor in determining the number of shock treatments necessary. 33% mentioned titrating this response against side effects was important.

93% of those administering ECT follow ECT with medication and 7% almost always use maintenance ECT. Only 13% mentioned the use of psychotherapy as a form of maintenance treatment. A 1990 article about the use of electroconvulsive therapy in depression notes that maintenance ECT is a recent phenomenon: "it has long been accepted that high relapse rate with ECT is one of its most serious limitations. The use of maintenance ECT has not been fully explored."³⁸ Sackeim (reference 14) cites available evidence that the relapse rate following ECT is substantially reduced by the use of maintenance medication. Current Task Force Guidelines suggest psychotherapy may be useful to some patients following ECT (reference 25). Michael Thase, at the University of Pittsburgh School of Medicine, explains the interest in testing the value of psychotherapies as continuation and long-term treatments is due, in part to "the rather high prevalence of psychosocial disturbances detected even after apparent recovery from depression."³⁹ The

choice of maintenance therapy to follow remission of depressive symptoms is an area of current research.

67% of the ECT doctors begin with unilateral with certain exceptions, 13% use bilateral unless there is a reason not to. Unilateral was recommended for the elderly and those needing to return to work; bilateral was suggested for suicidal and anorexic patients, manic psychoses, previous recipients of ECT, those with a history of relapse, and those showing no response to 4-5 unilateral treatments. 54% use mostly bilateral, 38% use mostly unilateral, and 8% use bilateral and unilateral equally. 75% of American Psychiatrists surveyed in 1978 used bilateral ECT exclusively (reference 24). A 1991 survey of psychiatrists in Australia reports 63% of patients in New Zealand and Australia receive unilateral ECT (reference 32). These differences in usage of bilateral and unilateral electrode placement reflect a lack of consensus on this aspect of the treatment.

The most popular machine types used by the ECT group are MECTA (73%) and Thymatron (20%); both use a pulse wave. These are reported to be the most widely used machines in North America.⁴⁰

73% of those administering ECT report using caffeine pretreatment, 13% have used it previously, 7% have not used caffeine, and 7% intend to. 60% think it lengthens the seizure, 13% say it decreases seizure threshold. During a course of ECT a decrease in seizure length is common and may result in missed or brief seizures and this is associated with decreased therapeutic efficacy.⁴¹ In 1985 Shapira et al. reported that pretreatment with caffeine sodium benzoate increased seizure length.⁴² Further studies indicated that seizure threshold was not significantly altered by caffeine administration at any stage (reference 41).

In response to the question how they educate patients about ECT and what procedure they use to obtain the patient's consent for it, 87% mentioned discussion with family members, 60% show an ECT video produced by Max Fink, 53% discuss risks and benefits, and 33% read the consent form with the patient and answer questions.

CONCLUSION

The goal of this study was to examine the attitudes, beliefs and practices of psychiatrists in Northern California towards electroconvulsive therapy for cases of severe depression. The rationale for a pilot study was to preliminarily assess how much consensus exists for this treatment in the 1990's. ECT is unusual and interesting partly because of its controversial history as a mistaken treatment for Schizophrenia, its record of abuse and overuse, the images and fears it evokes in reminding us of electrocution and its legacy as one of the few treatments of psychiatry used fifty years ago that is still used today.

Is ECT all that different from the original seizure induction introduced to this country by the Italian neuropsychiatrist, Almansi, back in 1940? Brief pulse, general anesthesia, muscle relaxants, oxygen, unilateral and bilateral electrode placement, and caffeine- these are some technical changes ECT has seen. It seems fair to say that the ECT of the 1990's looks different than it did a few decades ago, and at least there are no bone fractures. But how far have we come to understanding the effects of ECT on the brain, and on the symptoms of depression? We still do not know why it affects the depressive illness of a select group of people. Who does ECT benefit most? We are still struggling to find clinical and lab markers predictive of response.

To what extent has ECT come to be more favorably regarded due to recent strides in neurochemical research? Has ECT shifted from an empirical treatment to a therapy with a known theoretical basis? From this study it would seem that this is where much of the variety of opinion within psychiatry toward this therapy lies. Belief in the biological model and administration of ECT during residency are significantly associated with support for the use of ECT. 41% of those interviewed maintained the view formed during residency, while 27% became more convinced by seeing more patients improve. These findings

indicate first, that belief in a biological basis for depression gives credence to ECT as an effective treatment and second, that the experience face-to-face with ECT during residency plays a role in attitude formation. The finding that the majority of the ECT group mentioned endogenous symptoms as an important characteristic for considering ECT not only demonstrates that they consider ECT a primary treatment for Major Depression, it also may imply a link made by these psychiatrists between depression which seems to have a significant biological component and what they view as a biological treatment. It would seem that the majority of our interview sample agrees ECT has a place in contemporary psychiatry; major differences of opinion surround the question of whether ECT is a primary or secondary treatment for depression. A minority of psychiatrists are willing to administer it and a small group question its legitimacy as a form of treatment for mental illness.

For me, important questions to examine are: what are the long term effects of this treatment: on the psyche, on the mind, on the brain and memory? Does ECT's effect on memory have anything to do with its therapeutic effects? Why do 50% of those "cured" by ECT relapse within 4 to 6 months? What effect does ECT have on the therapeutic relationship between therapist and patient? And to expand this further to include other biological treatments in general, what effects do biological treatments share in common with the psychosocial, and do they have different specific effects that synergistically affect the depressed state at different points along the biochemical-cognitive-emotional-behavior pathway? What does the high rate of relapse associated with ECT mean? Does this tell us something about how ECT works and what factors may cause depression? Perhaps ECT's mode of action, like other biological treatments in medicine (e.g. insulin for Type I Diabetes Mellitus) is to *block the expression* of the depressive episode by affecting the final common pathway: brain neurochemistry. The natural history of depressive illness is thus not significantly altered, the experience of the disease is blunted.

The call for integrative research into mental illness and the imperative of a new model of disease to replace the reductionism of the biomedical model comes from a crisis in medicine and in psychiatry to attempt to heal the complex human being. Double blind control studies of the efficacy of different forms of psychotherapy and pharmacotherapy have been done. These show that each individually is more efficacious than controls, and their efficacy together is greater than either treatment alone. The next step requires integrative studies of the effects of various treatments on the thought, emotion, behavior, and biochemistry of individuals diagnosed with different subtypes of depression.

One of the arguments for psychotherapy is that it offers the possibility of effecting long term change through developing new attitudes and actions. Michael Thase describes the rationale: "At the least, psychotherapy will provide a greater level of support to help the patient to cope with ongoing life problems, and may ultimately assist the patient to learn more enduring and effective ways to solve or even prevent such problems." In addition to biological treatments which remove symptoms of debilitating depression, it is through psychotherapy and the process of relating to the therapist that patients may learn new ways to relate to the world and come to better self-understanding (reference 39).

If biological psychology comes to be recognized as one aspect in the multifactorial phenomenon of depression and becomes synergistically integrated with other disciplines in the long-term goal of maintaining the healthy psyche of the individual and of society, we will begin to understand the relative influence of various factors in precipitating a depression. Perhaps then we will come to understand the long term effects of different treatment approaches and be better able to effectively treat the whole person with the disease we call *depression*.

REFERENCES

- 1 Greist, John and Jefferson, James. 1984. *Depression and Its Treatment: Help for the Nation's #1 Mental Problem*. Washington: American Psychiatric Press, p. 9.
- 2 Mendlewicz, J. 1989. "The Social Burden of Depressive Disorders." *Neuropsychobiology*. vol. 22, pp. 178-180.
- 3 Klerman, Gerald and Weissman, Myrna. April, 1989. "Increasing Rates of Depression." *Journal of the American Medical Association*. vol. 286, no. 15, pp.2229-2235.
- 4 Papolos, Demitri and Papolos, Janice. 1987. *Overcoming Depression*. New York: Harper and Row, p. 55.
- 5 Bellah, Robert, Madsen, Richard, Sullivan, William, Swidler, Ann and Tipton, Steven. 1991. *The Good Society*. New York: Alfred Knopf, p. 176.
- 6 Toulmin, Stephen. 1990. *Cosmopolis the Hidden Agenda of Modernity*. New York: The Free Press, p. 201.
- 7 Engel, George. April 1977. "The Need for a New Medical Model: A Challenge for Biomedicine." *Science*. vol. 196, pp.129-135
- 8 Bebbington, Paul. 1987. "The Pursuit of Disease Theories of Depression." *The International Journal of Social Psychiatry*., vol. 33, no. 1, pp13-20.
- 9 Docherty, J.P., et al.. 1977. "Psychotherapy and Pharmacotherapy: Conceptual Issues." *American Journal of Psychiatry*. vol. 134, pp. 529-533.
- 10 Gill, M.M. 1977. "The Two Models of the Mental Health Disciplines." quoted in Vasile, Russell, et al.. 1987. "A Biopsychosocial Approach to Treating Patients With Affective Disorders." *American Journal of Psychiatry*. vol. 144, no. 3, pp. 341-344.

- 11 Miller, James Grier and Miller, Jessie. 1983. "Applications of Living Systems Theory to Conjoint Therapy." in Maurice Greenhill's (Editor) *Psychopharmacology and Psychotherapy*. New York: The Free Press, p.31.
- 12 Weissman, M. M. 1979. "The psychological treatment of depression: Evidence for the efficacy of psychotherapy alone, in comparison with, and in combination with pharmacotherapy." *Archives of General Psychiatry*. vol. 36, pp. 1261-1269.
- 13 Robinson, Leslie, Berman, Jeffrey, and Neimeyer, Robert. 1990. "Psychotherapy for the Treatment of Depression: A Comprehensive Review of Controlled Outcome Research." *Psychological Bulletin*. vol. 108, pp. 30-49.
- 14 Sackeim, Harold. 1989. "The Efficacy of Electroconvulsive Therapy in the Treatment of Major Depressive Disorder." in Seymour Fisher's(Editor)*The Limits of Biological Treatments for Psychological Distress*. Hillsdale: Lawrence Erlbaum Associates, p. 299.
- 15 Coffey, Edward and Weiner, Richard. 1990. "Electroconvulsive Therapy: An Update." *Hospital and Community Psychiatry*. Vol. 41, no. 5, pp. 515-521.
- 16 Weiner, Richard and Coffey, Edward. 1991. "Electroconvulsive Therapy in the United States." *Psychopharmacology Bulletin*. vol. 27, pp. 9-15.
- 17 Friedman, E., and Wilcox, P.H. 1942. "Electro-stimulated convulsive doses in intact humans by means of unidirectional currents." *Journal of Nervous Mental Disorders*. vol. 96, pp. 56-63.
- 18 Abrams, Richard. 1986. "Is Unilateral Electroconvulsive Therapy Really the Treatment of Choice in Endogenous Depression?" in Sidney Malitz' and Harold Sackeim (Editors) *Electroconvulsive Therapy Clinical and Basic Research Issues*. New York: The New York Academy of Sciences, pp. 50-53.
- 19 Liberson, W.T. 1944. "New possibilities in electric convulsive therapy; "brief stimuli" technique." *Digest of Neurological Psychiatry*. vol. 12, pp. 368-369.

- 20 Bennett, A.E. 1941. "A preventive of traumatic complications in convulsive shock therapy." *American Journal of Psychiatry*. vol. 97, pp. 1040-1060.
- 21 Janicak, P.G., Davis J.M., Gibbons, R.D., et al. 1985. "Efficacy of ECT: a meta analysis." *American Journal of Psychiatry*. vol. 142, pp. 297-302.
- 22 Linington, Alison and Harris, Brian. 1988. "Fifty years of electroconvulsive therapy." *British Medical Journal*. vol. 297, pp1354-1355.
- 23 McCall, W.V. 1989. "Physical treatments in psychiatry: Current and Historical Use in the Southern United States." *Southern Medical Journal*. vol. 82, pp. 345-351.
- 24 American Psychiatric Association Task Force. 1978. *Electroconvulsive Therapy*. Washington: American Psychiatric Association Press, pp. 161-162.
- 25 American Psychiatric Association, Task Force on ECT. 1990. "The Practice of ECT: Recommendations for Treatment, Training and Privileging." *Convulsive Therapy*. vol.6, no. 2, pp.85-120.
- 26 NIH. 1985. "Consensus Development Conference Statement on Electroconvulsive Therapy."
- 27 King, Bryan and Liston, Edward. 1990. "Proposals for the Mechanism of Action of Convulsive Therapy: A Synthesis." *Journal of Biological Psychiatry*. vol. 27, pp. 76-94.
- 28 King, Bryan and Liston, Edward. 1990. "Proposals for the Mechanism of Action of Convulsive Therapy: A Synthesis." *Journal of Biological Psychiatry*. vol. 27, pp. 76-94.
- 29 Kalayam, Balkrishna and Steinhart, Melvin. 1981. "A Survey of Attitudes on the Use of Electroconvulsive Therapy." *Hospital and Community Psychiatry*. vol. 32, pp. 185-187.

- 30 Armstrong, M.S. and Andrews, G. 1986. "A Survey of Practising Psychiatrists' Views on Treatment of the Depressions." *British Journal of Psychiatry*. vol. 149, pp. 742-750.
- 31 Sedlacek, Michael and Kang, Jasbir. August, 1987. "Electroconvulsive Therapy: A Survey of Use in Nebraska." *The Nebraska Medical Journal*. pp. 275-276.
- 32 O'Dea, Jeremy, Mitchell, Philip and Hickie, Ian. July 1, 1991. "Unilateral or bilateral electroconvulsive therapy for depression?" *The Medical Journal of Australia*. vol. 155, pp. 9-11.
- 33 Benbow, S.M. 1990. "Medical Students and Electroconvulsive Therapy: Their Knowledge and Attitudes." *Convulsive Therapy*. vol. 6 (1), pp. 32-37.
- 34 Goldbloom, David and Kussin, Dennis. 1991. "Electroconvulsive Therapy Training in Canada: A Survey of Senior Residents in Psychiatry." *Canadian Journal of Psychiatry*. vol. 36, pp. 126-128.
- 35 Freeman, C.P.L. and Kendell, R.E.. 1980. "Patients' Experiences of and Attitudes to Electroconvulsive Therapy." *British Journal of Psychiatry*. vol. 137: pp. 8-16.
- 36 Hamilton, Max. 1986. "Electroconvulsive Therapy Indications and Contraindications." *Annals of New York Academy of Sciences*. vol. 462, pp. 5-11.
- 37 Prudic, Joan, Devanand, D.P., Sackeim, Harold, et al. 1989. "Relative response of endogenous and non-endogenous symptoms to electroconvulsive therapy." *Journal of Affective Disorders*. vol. 16, pp. 59-64.
- 38 Persad, E. 1990. "Electroconvulsive Therapy in Depression." *Canadian Journal of Psychiatry*. vol. 35, pp. 175-182.
- 39 Thase, Michael. 1990. "Relapse and Recurrence in Unipolar Major Depression." *Journal of Clinical Psychiatry*. vol. 6, supplement pp. 51-57.

- 40 Chandrasena, Ranjith. 1989. "Electroconvulsive Therapy: A Consensus on Contemporary Issues." *Psychiatry Journal of the University of Ottawa*. vol. 14, no. 2, pp. 418-420.
- 41 Shapira, Baruch et al. September 1987. "Facilitation of ECT by Caffeine Pretreatment." *American Journal of Psychiatry*. vol. 144, no. 9, pp. 1199-1202.
- 42 Shapira, B. et al. 1985. "Potentiation of seizure length and clinical response to ECT by caffeine pretreatment." *Convulsive Therapy*. vol. 1, pp. 58-60.