

# EXPERIENCE, PRACTICE, AND REGULATION OF ECT IN INDIA

- A focused review
  - Deficiencies in practice
  - Unmodified ECT
  - Guideline development

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# MILESTONES



- Pre-1990: Little known about attitudes, practice
  - Reasons: Problems related to communication, travel, annual meetings
- 1990: National Workshop on ECT
  - First of its kind, >150 participants (IPS strength, 938)
  - Wide variations apparent in attitudes and practice



# MILESTONES

- 1991-92: Survey of the practice of ECT in India
  - Shocks and surprises
- 1993: Chart review on unmodified ECT
  - 1995: Rejoinder to the above
- 2000: First prospective study on unmodified ECT
- 2005: Second survey of ECT in India
- 2010: Second prospective study on unmodified ECT
- 2012: First position statement and guideline on ECT

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## THE PRACTICE OF ECT IN INDIA : ISSUES RELATING TO THE ADMINISTRATION OF ECT

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M. VENKATASWAMY REDDY<sup>3</sup>.

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*A questionnaire on ECT, tapping attitudes, opinions and usage, was mailed to all medical members of the Indian Psychiatric Society whose addresses were known; 263 (28.8%) responded. This paper, the first in a series that presents the results of the survey, provides demographic data on the respondents and covers issues relating to the administration of ECT. Specific issues discussed include the ECT personnel, location of the ECT facility, certain ECT prescription patterns, psychiatrist-patient interactions on suggestion of ECT, pre-ECT investigations, frequency of administration of ECT, use of regressive ECT and maintenance ECT, length of the ECT course across diagnoses, and use of psychotropic drugs in relation to the ECT course.*

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The effect of regional variation on the practice of electro-convulsive therapy (ECT)

(Over 30 such surveys have been conducted and published, chiefly from North America and

## THE PRACTICE OF ECT IN INDIA: II. THE PRACTICAL ADMINISTRATION OF ECT.

CHITTARANJAN ANDRADE, A.K.AGARWAL, M.VENKATASWAMY REDDY

### SUMMARY

*A questionnaire on ECT, tapping attitudes, opinions and usage, was mailed to all medical members of the Indian Psychiatric Society whose addresses were known; 263 (28.8%) responded. This paper, the second in a series that presents the results of the survey, describes the practical administration of ECT. Specific issues discussed are the availability of a cardiopulmonary resuscitation kit, ECT premedication, the ECT device, certain aspects of ECT stimulation, the electrode placement during ECT, administration of multiple ECT during a single treatment session and monitoring of the seizure duration. It is concluded that, in many respects, the practical administration of ECT in India is suboptimal; further research is required in certain areas.*

### INTRODUCTION

At the National Symposium on Electroconvulsive Therapy (ECT) held at the National Institute of Mental Health and Neurosciences in October 1990, it became apparent that there was considerable variation amongst Indian psychiatrists in attitudes, concepts and practice in relation to the field. A survey of the medical membership of the Indian Psychiatric Society (IPS) was therefore conducted to obtain an extensive database on ECT, covering opinions, attitudes and practice. It was hoped that the

analysis computer programmer.

### RESULTS

Of the 938 psychiatrists to whom the questionnaire had been mailed, 263 responded; 25 questionnaires were returned by the postal department marked addresses unknown. The response rate was therefore 263/913, or 28.8%. While the total sample size was 263, much difference in actual sample size across variables was observed. This was because of inadvertent omissions in the completion of the questionnaire by the respondents, il-

## INDIAN PSYCHIATRISTS' ATTITUDES TOWARDS ELECTROCONVULSIVE THERAPY

A.K. AGARWAL & CHITTARANJAN ANDRADE

### ABSTRACT

*A questionnaire on ECT, tapping attitudes, usage and experience, was mailed to all medical members of the Indian Psychiatric Society whose addresses were known; 263 (28.8%) of 913 psychiatrists responded. This paper describes Indian psychiatrists attitudes towards ECT. A global attitude favouring the treatment was expressed by 81.4% of respondents. The psychiatrists considered that for many patients ECT may be the safest, cheapest and most effective treatment (79.8%), disagreed that ECT should be used as a last resort (68.4%) and disagreed that drugs have made ECT obsolete (81%). While many (44.1%) opined that use of ECT should be curtailed, few (5.3%) considered that ECT should be abandoned - in fact, most respondents (86.3%) stated that comprehensive psychiatric care should include ECT services. A need was expressed for explicit guidelines for proper use of ECT (77.2%). Conflicting opinions were expressed about the use of ECT in children. Many psychiatrists (38%) thought that ECT may produce subtle brain damage; nevertheless, of those actively using ECT, 82.9% expressed willingness to receive ECT themselves, if indicated.*

*Key Words: Attitudes, ECT, India, psychiatrists*



# 1991-92: The first ECT survey

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- Agarwal et al, 1992; Andrade et al, 1993; Agarwal and Andrade, 1997
- 215 ECT practitioners among 263 respondents out of 938 surveyed.
  - 13.4% of patients treated with ECT.
  - No pre-ECT investigation in >40% of cases.
  - 24% did not know what stimulus they were administering
  - 30% preferred to administer unmodified ECT
  - Only 44% always administered modified ECT
  - Only 45% never used glissando



# 1991-92: The first ECT survey

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- Contd.
  - Only 34% never used manual timing of stimulus duration
  - Only about 5% practice of unilateral ECT
  - About 25% administered >1 ECT per session.
  - 81% did not monitor the seizure
  - 77% expressed the need for explicit guidelines





# THARYAN ET AL (1993)

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- Retrospective chart review, 1980-1990
- 1835 patients, 2002 courses of ECT = 13, 597 ECTs
- 98% unmodified ECTs
- 11 patients with compression fracture of vertebral bodies, 1 case of scapular fracture
- In 6 patients, ECT was continued with modification
- Conservative management, uneventful outcomes
- No long term problems in the cohort
- **X-rays not routinely obtained in all**

## UNMODIFIED ECT: A NOTE OF CAUTION

Sir,

I read with interest the article on unmodified ECT of Tharyan et al (1993) and the debate on the subject (Gangadhar & Janakiramalah, 1994; Tharyan et al, 1994). There is one critically important issue that appears to have been overlooked in the evaluation of unmodified ECT. This issue is the occurrence of subclinical spinal fractures.

Present day practitioners and advocates of unmodified ECT in India may be unaware that that fractures, particularly of the spine, occur in upto 40% of examined cases when convulsions are unmodified (Fink, 1979). In most studies, the incidence was 20%-30% and was higher in males than in females (Pitts, 1982). Therefore, before the advent of the modified procedure, medicolegal considerations necessitated routine pre-ECT X-Rays of the dorsal spine (Abrams, 1988). This is why modified ECT, introduced over four decades ago, has become the norm today (Gangadhar et al, 1990; American

## MUSCULOSKELETAL MORBIDITY WITH UNMODIFIED ECT MAY BE LESS THAN EARLIER BELIEVED

CHITTARANJAN ANDRADE, KIRAN RELE,  
R. SUTHARSHAN & NILESH SHAH

### ABSTRACT

Official guidelines for the practice of electroconvulsive therapy (ECT) recommend routine seizure modification to minimize musculoskeletal complications; nevertheless, unmodified ECT continues to be administered in India. We therefore assessed musculoskeletal morbidity with unmodified ECT with particular reference to the development of vertebral fractures and backache. X-rays of the thoracolumbar spine were routinely obtained before and after a course of 6 ECTs in 50 consecutive schizophrenic patients receiving unmodified sinusoidal wave treatment.

Backache was reported by 52% of patients; the symptom was severe in 14%. Severe backache developed early during the ECT course and was commoner in older patients. Gender, height and weight did not predict either presence or severity of backache. One patient experienced a vertebral fracture which was not considered serious; this contrasts with the 20-40% incidence of adverse

# 2000: UNMODIFIED ECT: PROSPECTIVE STUDY

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- Andrade et al, 2000
- Prospective observational study of 50 consecutive patients receiving 6 unmodified ECT, each.
- Routine pre-, intra-, and post-ECT X-Rays
- **Only 1 patient had a (minor) vertebral fracture.**
- Treatments were benzodiazepine-modified.

# The Dilemma of Unmodified Electroconvulsive Therapy

Chittaranjan Andrade, M.D.; Nilesh Shah, D.P.M., M.D., D.N.B.;  
and Prathap Tharyan, M.D., M.R.C.Psych.

Electroconvulsive therapy (ECT) was introduced in 1938, in an era in which antidepressant and antipsychotic drugs were unknown.<sup>1,2</sup> Today, over 6 decades later, despite the availability of a large number of psychopharmacologic agents for the treatment of depression and psychosis, ECT remains an important method of treatment in psychiatry. This is because ECT can be life-saving in catatonic, suicidal, or otherwise severely disturbed patients,<sup>2</sup> because it is of exceptional benefit to patients with psychotic depression,<sup>2</sup> and because it can be therapeutic<sup>3,4</sup> as well as prophylactic<sup>7</sup> in patients who do not respond to antidepressant or antipsychotic drugs.

While depression is the primary indication for ECT,<sup>1,2</sup> the treatment may also be useful for patients with severe or drug-refractory schizophrenia<sup>1,2</sup> or mania.<sup>2</sup> ECT has also been (uncommonly) used with varying degrees of success for experimental indications such as delirium, Parkinson's disease, obsessive-compulsive disorder, tardive dyskinesia, neuroleptic malignant syndrome, refractory epilepsy, and other disorders.<sup>1,3</sup>

ECT results in a central, electroencephalographically recordable seizure and a peripheral, visually apparent convulsion. There is an enormous body of literature on the neurobiological effects of ECT. While we do not know for certain which effects mediate the therapeutic actions of the treatment, we do know that ECT remains effective even if the peripheral convulsion is abolished,<sup>10,11</sup> but not if the central seizure is inhibited.<sup>12</sup> Therefore, efforts to attenuate the peripheral convulsion were made as early as 1940<sup>13</sup>; succinylcholine-modified ECT, however, was not described until 1952.<sup>14</sup>

## DISADVANTAGES OF UNMODIFIED ECT

Why would clinicians want to modify ECT by abolishing the peripheral convulsion? For one, the convulsion looks barbaric and encourages the myth that ECT is a barbaric treatment.<sup>17</sup> More importantly, Western research conducted during the 1940s and 1950s suggested that the convulsion is associated with an approximately 20% to 40% risk of multiple (mean = 2.2–2.5) sublethal verte-

# 2005: SURVEY OF ECT IN TEACHING HOSPITALS

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- Chanpattana et al, 2005
- ECT available in 66 of 74 responding institutions
- Brief-pulse ECT available in only 30 institutions
- Unilateral ECT rare
- About half the patients received unmodified ECT
- EEG monitored in only 8 institutions

## The Safety and Efficacy of Benzodiazepine-Modified Treatments as a Special Form of Unmodified ECT

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Praveen Fernandes, MD,|| and Chittaranjan Andrade, MD¶*

**Background:** Muscle relaxants reduce musculoskeletal morbidity with electroconvulsive therapy (ECT) but need to be administered under general anesthesia. The administration of anesthesia is not always possible for patients prescribed ECT. Consequently, unmodified ECT is still widely practiced, especially in developing countries.

**Methods:** We prospectively assessed musculoskeletal morbidity in consecutive patients who received unmodified bitemporal ECT during a part or the whole of their ECT course. All patients were pretreated with an intravenous benzodiazepine (usually diazepam, 10 mg) to effect sedation, anxiolysis, and limited skeletal muscle relaxation. Anteroposterior and lateral digital x-rays of the thoracolumbar spine were obtained after the last unmodified treatment.

**Results:** Fifty-six patients aged 11 to 49 years and with a mean body mass index of 23.0 received a total of 162 (mean, 2.9) unmodified ECTs. There was significant attenuation of psychopathology ratings.

**E**lectroconvulsive therapy (ECT) is an important treatment in psychiatry because it can be life-saving in catatonic, suicidal, or otherwise severely disturbed patients<sup>1,2</sup> because of its particular efficacy in patients with psychotic depression<sup>3</sup> and because of its therapeutic<sup>4-7</sup> and prophylactic<sup>8</sup> potential in patients who respond poorly to antidepressant or antipsychotic drugs.

Electroconvulsive therapy induces seizure activity in the brain; this central seizure is critical to its therapeutic actions.<sup>9</sup> Electroconvulsive therapy is also associated with convulsive movements of the body; this peripheral seizure is aesthetically unpleasant and irrelevant to therapy.<sup>9-11</sup> The peripheral seizure, in fact, was reported to be associated with a 20% to 40% risk of subclinical compression fractures of vertebral bodies<sup>12-15</sup> and with risks such as dislocation of joints, muscle fiber or ligament tears, cardiac arrhythmias, aspiration of secretions into the respiratory tract, hemorrhage at various sites, and anxiety.<sup>16</sup>

## Variations on a Theme of Unmodified Electroconvulsive Therapy

### *Science or Heresy?*

*Chittaranjan Andrade, MD*

*J ECT 2010;26: 30-31*

In a small, prospective study of 50 consecutive patients who received a course of 6 unmodified electroconvulsive therapy (ECT) treatments, routine radiological assessments identified only 1 patient to have experienced a (minor, subclinical) vertebral fracture.<sup>1</sup> In another small, prospective study of 56 consecutive patients who received a mean of 2.9 unmodified ECTs as part of their ECT course, routine digital radiological assessments demonstrated that no patient experienced any spinal complication.<sup>2</sup> These findings contrast sharply with historical data of a 20% to 40% risk of dorsal spine vertebral body compression fractures with unmodified ECT.<sup>3-6</sup> Many patient- and procedure-related reasons were proposed for the apparent safety of unmodified ECT in these 2 recent studies<sup>1,2</sup>: slim frame, and hence lesser violence of muscular contraction; youth, and hence an absence of risk of osteoporosis; and physical restraints, and hence lesser vigor of muscular movements.

Two other reasons were also proposed.<sup>2</sup> One was that a lower electrical charge predisposes to a less vigorous convulsion, and the other was that premedication with an intravenous benzodiazepine results in muscle relaxation that mimics peripheral seizure modification. In a series of rat experiments on the seizure effects of differently constituted ECT stimuli, we found that stimulus charge but no other stimulus variable significantly predicted the risk of spinal fracture with unmodified



# 2010: UNMODIFIED ECT: PROSPECTIVE REPLICATION

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- Shah et al, 2010
- Prospective, observational study of 56 consecutive patients who received an average of 2.9 benzodiazepine-modified ECTs
- X-Rays obtained routinely after ECT
- 2 cases with old spinal fractures
- **No fracture during the current course**

# NEW INDIAN MENTAL HEALTH ACT

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- Proposed changes included prohibition of unmodified ECT and ECT in children and adolescents.
- Resulted in the development of a position statement and guideline on unmodified ECT.
- Ratified by:
  - Indian Psychiatric Society
  - Indian Association of Biological Psychiatry
  - Indian Association of Private Psychiatry
  - Andrade et al, 2012

## Position statement and guidelines on unmodified electroconvulsive therapy

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Indian Association of Private Psychiatry Task Force on ECT, India

### ABSTRACT

**Background:** In modern day psychiatric practice, it is assumed as a matter of fact that when electroconvulsive therapy (ECT) is administered, it will be administered under anaesthesia and with succinylcholine (or its equivalent) modification. Yet, as surveys indicate, there is considerable practice of unmodified ECT in developing countries and, to a small extent, in the developed world, as well.

**Materials and Methods:** This document examines historical and recent literature on the geographical practice, physiology, efficacy, and adverse effects of unmodified ECT. Particular attention is paid to musculoskeletal risks.

**Results:** Although almost all the research is of poor methodological quality, there is a good reason to accept that unmodified ECT is associated with a wide range of adverse consequences, important among which are musculoskeletal complications, pre-ECT anxiety, and post-ECT confusion. However, it appears from recent data that these risks are not as large as historically portrayed. Possibly explanations are suggested, with seizure modification using parenteral benzodiazepines as a special possibility.

**Conclusions:** Under exceptional circumstances, if ECT is strongly indicated and seizure modification with succinylcholine is not feasible, unmodified ECT, especially benzodiazepine-modified ECT, may be a viable option. A detailed set of recommendations for such use of unmodified ECT is proposed along with necessary checks and balances. This document has been approved by the Indian Psychiatric Society, the Indian Association of Biological Psychiatry and the Indian

# POSITION STATEMENT ON UNMODIFIED ECT

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# PRELIMINARY COMMENTS

- Medicolegal and statutory seriousness of the subject
- How this document was prepared
  - Literature sourced in original and read completely



# SECTIONS: 1



- Mission
- Definitions:
  - Muscle relaxants, anesthesia, unmodified ECT, modified ECT
  - Note on the introduction of modified ECT
  - Note on the range of seizure modification with scoline
- The practices of unmodified ECT across the world
  - India
  - Other parts of the world, including the West
  - Reasons for continued practice



# SECTIONS: 2

- Current guidance regarding unmodified ECT
  - Viewpoints
  - Guidelines (APA, RCP, India)
  - WHO, WPA
  - Legal
- Critique of data
- Clinically relevant physiology of unmodified ECT
  - Seizure threshold
  - Hemodynamics
  - Vigor of convulsion and modulators thereof [etc.]



# SECTIONS: 3

- Disadvantages and risks of unmodified ECT
  - Pre-ECT anxiety
  - Bleeding from various sites
  - Dental complications
  - Injuries to muscles, ligaments, joints, long bones
  - Backache and vertebral fracture complications
  - Post-ictal confusion
  - Aesthetics
  - (Cognitive impairment and other complications, including death)





# SECTIONS: 4

- Vertebral complications of unmodified ECT
  - Evaluations of literature
  - Examination of individual studies
  - Modulators of risk
  - Clinical implications of fractures
- Possible benefits of unmodified ECT
  - Risks with anesthesia
  - Risks with succinylcholine
  - Greater efficacy??



# SECTIONS: 2

- Putting unmodified ECT in perspective
  - Comparisons with other medical/surgical procedures
  - Issues related to infrastructure and emergencies
- Summary
- **RECOMMENDATIONS**
  - Examples of circumstances in which the administration of unmodified ECT may be considered reasonable
- References



# DEFINITIONS (excerpts)

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- Unmodified ECT is the administration of ECT without a muscle relaxant.
  - Administration of anesthesia without muscle relaxation is not modified ECT.
- **Comment:**
  - Modified ECT ranges along a continuum of partially to fully modified treatment.



# GEOGRAPHICAL PREVALENCE

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- Unmodified ECT has been reported from:
  - Nigeria, Uganda, Malawi
  - UK, France, Spain, Russia
  - Japan, Turkey, China, Thailand, India
- In one year during 2001-2003, 129,906 unmodified ECTs were administered to 22,194 (56%) patients at 141 (55%) institutions in 14 (61%) of 23 countries in Asia (Chanpattana et al, J ECT 2010).
- No epidemiological sequelae



# PREVALENCE IN INDIA

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- In 1991-92, only 44% of ECT practitioners invariably administered modified ECT (Andrade et al, IJP 1993).
- In 2001-02, only 44 (67%) of 66 teaching hospitals offering ECT administered modified treatments. An estimated 10, 324 (52%) patients received 52,450 unmodified ECT at 33 institutions (Chanpattana et al, J ECT 2005).
- **No epidemiological sequelae**

# REASONS FOR CONTINUED PRACTICE OF UNMODIFIED ECT: 1

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- Lack of anesthesiological support
  - Absence of infrastructure and funding
  - No qualified anesthesiologists
  - Anesthesiologists monopolized by surgeons
  - ECT insufficiently remunerative to anesthesiologists
  
- Urgent need for ECT
  - And lack of time for anesthesiological clearance

# REASONS FOR CONTINUED PRACTICE OF UNMODIFIED ECT: 2

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- (contd.)
- Contraindications for anesthesia
- Contraindications for succinylcholine
- Lack of accessible veins for i.v. injection
- Unaffordability of anesthesiological support
- Many or all of the above may constitute justifications for unmodified ECT in special circumstances described later in this document.

# CURRENT GUIDANCE ON UNMODIFIED ECT

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- APA (2001), RCP (2005) guidelines on ECT: Modified ECT the de facto norm.
- WPA (2004): Unmodified ECT in exceptional circumstances, only (based on Andrade et al, 2003).
- WHO (2005): The practice of unmodified ECT should be stopped.
- High Court of Bombay at Goa (1998): No strictures placed on unmodified ECT



# GENERAL COMMENTS ON UNMODIFIED ECT DATA

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- Much of the data is historical
- Much of the data was unsystematically collected
- Very little data from comparative studies
- We do not know to what extent the issues attributed to unmodified ECT are actually due to
  - Nonspecific consequences of ECT rather than the lack of modification.
  - Consequences of the unmodified ECT environment

# PHYSIOLOGY OF UNMODIFIED ECT

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- More vigorous, longer lasting convulsion
  - Intensity dependent on the ECT stimulus dose
- Lower seizure threshold
  - Implications for stimulus dosing.
- Less peripheral pooling of blood
  - Possibly higher/more sustained blood pressure surge
- Decreased oxygen saturation during the seizure
- No biochemical evidence of tissue damage



# RISKS WITH UNMODIFIED ECT

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- Increased pre-treatment anxiety
- Increased risk of bleeding from various sites?
- Increased risk of dental complications?
- **Increased risk of musculoskeletal complications**
  - **Principally spinal fractures**
- Increased risk of post-ictal confusion
- Visually unaesthetic
- (No data on cognitive adverse effects, death etc.)

# MUSCULOSKELETAL COMPLICATIONS: Historical literature

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- There is a 20%-40% risk of spinal fractures with unmodified ECT
  - Risk more in young, old
  - Thoracic spine D4-D6 most commonly affected
  - Compression fractures most common
  - Mostly occur early during the course
  - Usual symptom is backache but may be asymptomatic
  - **No long term sequelae**
- Lingley and Robbins (1947), Meschan et al (1950), Dewald et al (1954),

# Historical literature: Absence of musculoskeletal risk

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- Caplan (1946) described the administration of 1183 unmodified ECTs across 3-17 months to 25 patients. Routine X-Rays obtained before and after ECT identified no case of vertebral fracture.

# RECENT STUDIES

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- Tharyan et al (1993)
- Andrade et al (2000)
- Shah et al (2010)



# POSSIBLE FACTORS PROTECTING AGAINST INJURY

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- Young age (no osteoporosis)
- Slim frame (less muscle mass)
- Lower electrical dose
- Physical restraints
- Benzodiazepine modification

# UNMODIFIED ECTs: THEORETICAL BENEFITS

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- No anesthesia-related adverse effects and risks
- No succinylcholine-related adverse effects and risks
- ? Higher efficacy associated with higher electrical doses relative to the seizure threshold



# PUTTING UNMODIFIED ECT INTO PERSPECTIVE: 1

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- Visually unaesthetic appearance:
  - Cardioversion, cesarean section, orthopedic procedures etc are also visually unaesthetic.
- Seeming dangerousness:
  - Open-heart surgery, neurosurgery, orthopedic surgery and other procedures can leave patients with well-defined, permanent vulnerabilities.

# PUTTING UNMODIFIED ECT INTO PERSPECTIVE: 2

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- Medical parallel: The use of suboptimal medical and surgical practice
  - In emergencies
  - In circumstances in which training and infrastructure do not permit the ideal.
- Whereas suboptimal practice is undesirable, it has long been recognized that there are circumstances in which suboptimal practice is better than no intervention.



# SUMMARY

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- Unmodified ECT is associated with greater clinically-relevant risks than modified ECT. The most important risks are musculoskeletal in nature.
- Unmodified ECT is widely practised in the developing world, and it is unlikely that this practice will soon stop.
- Two small prospective studies with a pooled sample size of 106 patients suggest that benzodiazepine-modified ECT carries far lower risks of orthopedic and general medical morbidity than the risks described in the historical studies.
- Epidemiological and longitudinal data do not indicate that unmodified ECT is dangerous.

# RECOMMENDATIONS: A

- Based on literature
- Based on prudence
- Based on consensus





# RECOMMENDATIONS: B

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- Medical parallel: The use of suboptimal medical and surgical practice
  - In emergencies
  - In circumstances in which training and infrastructure do not permit the ideal.
- Whereas suboptimal practice is undesirable, it has long been recognized that there are circumstances in which suboptimal practice is better than no intervention.



# RECOMMENDATIONS: C

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- Some recommendations may seem impossible to comply with
  - E.g. Obtaining a second opinion
  - E.g. Obtaining a dental opinion in patients at risk
  - E.g. Obtaining X-Rays before and after the ECT course in emergency settings or settings where the infrastructure does not exist.
- These recommendations are nonetheless made to represent the ideal, not the mandatory.



# RECOMMENDATIONS: 1-2

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- 1. Unmodified ECT should not be practised as a routine form of treatment.
  
- 2. Unmodified ECT should be administered only on a case by case basis
  - When ECT is strongly indicated
  - When the benefit clearly outweighs the risks
  - Document indication and the risk-benefit analysis



## RECOMMENDATIONS: 3-4

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- 3. Wherever possible, the strong indication for ECT should be confirmed by a second psychiatrist. If this cannot be done, the reasons should be documented.
- 4. In conducting the risk-benefit analysis referred to above, it should be kept in mind that young adults, male patients, muscular patients, old adults, and those at risk of osteoporosis may be at an increased risk of spinal fractures with unmodified ECT.





## RECOMMENDATIONS: 5-6

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- 5. Care should be taken to consider excluding patients at special risk.
  - E.g. patients with musculoskeletal disorders or uncontrolled hypertension.
- 6. Legally-valid informed consent for ECT should include a case-specific paragraph on the risk-benefit analysis of unmodified ECT.
  - The consent form should also specify how many unmodified ECTs are likely to be administered.
  - If this number is exceeded, the patients should be re-consented for the additional treatments.



## RECOMMENDATIONS: 7-9

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- 7. Ideally, a dental opinion should be obtained before unmodified ECT.
- 8. Ideally, anteroposterior and lateral radiological views of the thoracolumbar spine should be obtained before unmodified ECT to assist in the interpretation of X-Rays that might later be indicated.
- 9. Verbal reassurance and support should be provided to reduce pre-ECT anxiety; if required, an oral anxiolytic can be administered, 1-3 h before ECT.



# RECOMMENDATIONS: 10

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- 10. Although there is no RCT evidence in support, it could be prudent to administer diazepam 10 mg intravenously about 2-3 minutes before unmodified ECT
  - To reduce acute anxiety
  - To induce somnolence
  - To reduce awareness of anxiogenic parts of the procedure
  - To effect limited skeletal muscle relaxation
  - To reduce the risk of post-ECT confusion.



# RECOMMENDATION: 11

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- Second-line alternatives to i.v. diazepam:
  - Oral diazepam, 1-2 h earlier
  - Oral/parenteral midazolam
  - Sedating but nonanesthetic dose of short-acting anesthetic agents
- Indication and use depend on local circumstances and contraindications



## RECOMMENDATION: 12-13

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- 12. Use appropriate mouth guards and mandible support to minimize dental risks during the tonic-clonic phase of the unmodified seizure.
- 13. Use belt, sheet, and/or manual restraints to minimize limb and trunk movements, and hence the violence of the convulsion. The restraints should be applied over the upper body and arms, the hips and forearms, and the knees.



## RECOMMENDATION: 14-16

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- 14. No data available on unilateral vs bilateral ECT; prefer bilateral if an emergency and if BDZP-modified.
- 15. Ventilate with 100% oxygen using a face mask.
- 16. Avoid subconvulsive stimulation but also avoid conventional doses which may be suprathreshold.
  - Suprathreshold doses increase the risk of fractures, post-ictal confusion, cognitive impairment
  - However, when BDZP are administered, conventional doses will be necessary.



# RECOMMENDATION: 17

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- 17. After each unmodified ECT, patients should be clinically assessed, investigated, and managed, wherever indicated, for adverse outcomes.
  - Especial attention needs to be paid to possible postictal confusion, conjunctival bleeding, oral bleeding, loosening of teeth, backache, spinal tenderness, or other musculoskeletal problems.
  - Document assessments even if negative.
  - Re-evaluation and re-document the risk-benefit ratio as necessary, before continuing with unmodified ECT



# RECOMMENDATION: 18

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- 18. The experience of each treatment should guide the practice of the next.
  - For example, if monitoring discovers an unacceptably high surge in systolic blood pressure during ECT, oral metoprolol or amlodipine, or other suitable interventions, may be administered about 2 h before subsequent ECTs.





# RECOMMENDATION: 19-20

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- 19. Ideally, at the conclusion of the ECT course, anteroposterior and lateral X-Rays of the thoracolumbar spine should once again be obtained to check for skeletal complications.
- 20. At the conclusion of the unmodified ECT course, the risk-benefit experience with unmodified ECT should be carefully documented.



# RECOMMENDATION: 21

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- 21. At the conclusion of the series of unmodified ECT, patients should be continued on maintenance pharmacotherapy or maintenance ECT, as they might have, had they received a course of modified ECT.
- In this as in all regards not addressed above, the practice of unmodified ECT should ideally be the same as that with modified ECT

# Examples of circumstances in which the use of unmodified ECT may be considered reasonable: 1

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- A clinical emergency indicating ECT (e.g. major depression with strong suicidality; medically uncontrolled violence in mania or schizophrenia) and any of the following:
  - a) Unavailability or unaffordability of facilities for anesthesia
  - b) No time/opportunity for anesthesiological attendance or clearance
  - c) Absence of fitness for anesthesia as judged by an anesthesiologist
  - d) Contradindication for the administration of succinylcholine (e.g. burn injuries, organophosphorus poisoning, pseudocholinesterase deficiency) and unavailability of facilities for administering nondepolarizing muscle relaxants.

# Examples of circumstances in which the use of unmodified ECT may be considered reasonable: 2

- A non-emergency in which ECT is strongly indicated (e.g. severe depression, mania, or schizophrenia; psychotic depression, severe catatonia; refractory psychiatric illness; maintenance ECT associated with refractory illness) combined with (a) or (b) below.
- There should also be strong reasons to believe that ECT would offer benefits far greater than those possible with medications, and that the delay in or denial of ECT would harm the patients and/or family.
- a) Unavailability or unaffordability of facilities for modified ECT in the treating clinician's facility or in nearby psychiatric facilities .
- b) Absence of fitness for anesthesia or contraindication for the administration of succinylcholine.



# CURRENT STATUS: 1

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- ECT is widely available in certain pockets.
  - E.g. Maharashtra, Gujarat, Karnataka
- ECT is virtually unavailable in certain pockets.
  - E.g. Kerala, West Bengal
- Pockets of obsolescence persist.
  - Sine wave ECT
  - Unmodified ECT
- Bilateral ECT is almost universal.
- M-ECT is rare.



# CURRENT STATUS: 2

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- Reasons for decreasing trends in the use of ECT:
  - More psychopharmacological options
  - Shift to office-based practice
  - Unavailability of anesthesiologists
  - Increased costs
  - Education and public attitudes



# FUTURE PLANS

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- Development of:
  - Situation-specific standard operating procedures for ECT
  - Position statement and guideline on ECT for children and adolescents
- Privileging for ECT
- On-site audits
- Formation of a national society??

ENFIN...



- That's it, folks;  
thanks for listening!