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## Short Communication

# Dental Health, Mental Health, and Electroconvulsive Therapy

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Oral and dental health has received much lesser attention in the field of psychiatry. We know that Electroconvulsive therapy remains the lifesaving procedure for acute management of suicidality and catatonia, along with being a great treatment option for severe depression, schizophrenia, and management of aggression. Moreover, ECT is becoming widely accepted due to its efficacy, tolerability, and lesser side effect profile as compared to psychotropic medications. In a psychiatric setting, dental health is predominantly important for a geriatric patient undergoing ECT. As we understand in contemporary psychiatry, modified ECT, i.e., ECT under general anaesthesia, is recommended by most guidelines across the world. The frequent delay in the ECT procedure because of the inability to receive fitness during Pre-Anaesthetic Checkup (PAC) is encountered in routine practice and attributed to the presence of loose teeth or compromised state of dental implants.

The vulnerable population belongs predominantly to the geriatric age group and paradoxically, ECT appears to be a safer option in this population for quicker recovery; therefore, the awareness of dental health in such psychiatric patients is rising [1]. There are two major aspects- firstly regarding the use of bite guards or oral protective devices used during ECT, posing a risk to dental health even in otherwise healthy individuals, and secondly, the fitness to undergo ECT would be

becoming a major hurdle because of the presence of loose tooth and poor dental health [2]. Patients with a history of ill dental health are more vulnerable to loosening of teeth, jaw pain, and soreness as noted in earlier research.

The placement of electrodes during the ECT is on temples (in bifrontal ECT) or one inch above the midpoint of the line joining the outer canthus of the eye and tragus (in bitemporal and right unilateral single electrode placement). The passage of current directly affects the contraction of a major group of facial muscles during the convulsion phase of the treatment. The primary muscles responsible for the clenching of teeth include masseteric, pterygoid, and temporalis which brings out the friction between the upper and lower jaw teeth. The absence of protective neural feedback from periodontium is lost during anaesthesia and forceful overlap of teeth can happen [3]. This is prevented by using different types of oral protective devices and bite guards mentioned in (Table 1) [1, 4, 5]. The research in the area of developing mouth guard/bite blocks continues considering the challenge of keeping airway patency as well as preventing dental injuries during ECT. However, most institutes practice the use of oxygen masks in place of the airway to safeguard breathing and dental health at the same time. The development in practices of using a safer alternative that can absorb dental pressure has so far been useful for all patients undergoing ECT.

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**Table 1:** Types of oral protective devices/bite blocks/gags/prop for protection of teeth.

|                             |                                                                           |
|-----------------------------|---------------------------------------------------------------------------|
| Raymond's Rubber bite block | Blachly bite block with an anterior open channel that allows ventilation. |
| Raymond's Gauze packing     | Disposable foam protector for teeth used during ECT                       |
| McClure's Dental plastic    | Oberto-style mouth prop with the internal airway.                         |
| Gauze-wrapped tongue blades | Mouth guards                                                              |
| Braided gauze gags          | Gauze roll bent in U shape                                                |

However, in such a situation, the accidental release of the implant or loose tooth from the dentition can be precipitated by ECT, resulting in cases of aspiration and associated complications among vulnerable patients.

We further emphasize that the slightly alkaline nature of saliva helps to maintain the oral bactericidal effect, which is reduced or lost in psychiatric patients due to a continued state of dryness of mouth produced by most antipsychotics (except clozapine) and few antidepressant medications. The predisposing causes of the loose tooth are varied, such as an inadvertent ignorance towards oral health of psychiatric patients, excessive consumption of smokeless tobacco, excessive smoking, poor dental hygiene practices, poor nutrition, dental caries, and submucous fibrosis leading to narrowed mouth opening. The specific dental issues arising in the vulnerable patients may also include but are not limited to prior treatment such as root-canal surgery, acid reflux disease, dental caries, congenital mal dentition (crowded teeth), infection of the root, gingivitis, endocrinopathies leading to teeth resorptions, etc. Recently authors encountered a couple of geriatric cases with bipolar disorder who had acute uncontrolled manic symptoms while on antipsychotics and mood stabilizers. They developed severe hyponatremia with a mood stabilizer, and severe extrapyramidal symptoms (EPS) with antipsychotic medications limiting the use of medications and necessitating immediate use of ECT. However, in both

the patients, it was hard time waiting to correct underlying dental issues to get PAC clearance for ECT.

In patients with isolated teeth on a single side, multiple extracted teeth with hollow spaces in between, and edentulous patients, metallic dentures should be recommended over acrylic dentures to prevent the fracture of teeth during ECT [3]. It is also recommended to prepare special individualized dentures for such patients who require ECT. Avoiding direct electrical stimulation of muscles on the side of an extracted tooth, by preferring the right unilateral ECT in geriatric patients appears to be a rational choice. This should proactively be thought of in patients who had a good response to ECT in their previous psychiatric episodes. The decision of ECT should preferably be supported by using the right unilateral ECT to prevent direct stimulation of both sides of the jaw muscles. Though there are no guidelines or randomized controlled trials examining the benefits of active screening for dental health among psychiatric patients before consideration of ECT or those who required ECT in their past episodes of psychiatric illness, we recommend routine dental health care in such patients who are in remission from the psychiatric symptoms [3]. Table 2 describes the possible precautions that can be taken while considering ECT in patients with poor dental health. On the flip side, we also recommend that keeping psychiatric patients fit for dental health with a lifetime history of ECT could be a preventive and promotive approach toward safe practices.

**Table 2:** ECT placement and suggested precautions in patients with compromised dental health.

| Patient's dentition status                                    | Precaution                                                                                                                                                              | Recommended ECT placement               |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Fully dentate                                                 | Use the thinnest possible bite guard. The bite guard should not be forced up behind the upper anterior teeth by the lower anterior teeth                                | Right unilateral> bifrontal> bitemporal |
| Dental implants, crowns, bridges                              | Posterior teeth implants are more susceptible to axial force while anterior implants are more vulnerable to lateral forces.                                             | Right unilateral                        |
| Edentulous                                                    | Consider reducing the pressure to a single side by using a small prop.                                                                                                  | Right Unilateral                        |
| Partial dentition (solitary tooth, extracted tooth with gaps) | Metal-based dentures are preferred over acrylic dentures. An individualized bite guard is best if possible to support the remaining teeth and spread the force equally. | Right Unilateral                        |

We further highlight that nutritional deficiency (including vitamins B, calcium, magnesium, etc.) is common among severe mental illnesses, who are also the candidates for ECT, and therefore routine oral hygiene, necessary nutritional supplementation, and semiannual dental assessments by specialist dental practitioner/surgeon would assist in preventing the unfortunate delay or postponement of ECT when required in such candidates.

In the end, ECT remains the gold standard treatment for severe mental illnesses in contemporary psychiatry. Striking a balance between dental health and mental health is important while considering the ECT, and at no cost, dental health should become an obstacle for ECT. Therefore, a routine dental screening of patients with a lifetime history of ECT, and

routine dental consultation for admitted patients with psychiatric illnesses could facilitate the promotion of mental health with dental health. Given the 25% chance of injury to dental soft tissue, and 1-2% chance of injury to hard tissue, the adequate mentioning of risk to dental health during ECT procedure should be a norm in a consent form for ECT [3]. This is also true that dental assessment of referred psychiatric patients should be carried out keeping these issues in mind. Further, more research in this area could facilitate the decision-making in psychiatry in the future.

### Conflicts of Interest

None.

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