

OSA GUIDELINES 2018

OSA treatment with a MAD

Introduction / Preface

Mandibular advancement device (MAD) therapy must improve the air passage of the upper airway by fixation of the mandible in a forward position.

This is normally accomplished by a dentally anchored appliance.

Normally the mandible is protruded between 50-80% of the maximal protrusive range.

Fixation of the mandible in a protruded position also prevents more or less autorotation of the mandible and consequently further. Dropping of the base of the tongue.

A MAD is made of hard or soft resin and may be produced in a Monobloc or Bibloc model. The Monobloc type MAD is an one piece appliance and the mandible is fixed in a protrusive position. The Bibloc type MAD is a two-piece appliance that is individually adjustable by a screw mechanism. In the treatment of OSA normally the Bibloc MAD is used. It is not clear if there is a difference between Monobloc and Bibloc MAD regarding effectivity and side effects. Several studies have been made to evaluate the effect of MAD therapy in OSA patients.

It is still not clear what the effect of MAD therapy on the other endpoints as compared to other / alternative therapies.

In the Dutch Guidelines (2009) MAD therapy is advised as a possible treatment in OSA patients with AHI 5-30.

Further differentiation in this group as well as in the therapy resisted OSA patient is to be explored.

Patient compliance to MAD therapy is reliable and measurable.

To what extent this objectively assessed patient adherence differs from a treatment like CPAP is not known.

Research question

What is the role/position of MAD treatment in OSA patients?

Subquestions

1. What is the effect of the MAD treatment compared to placebo therapy and other therapies.
2. Is MAD therapy suitable for edentulous OSA patients?
3. Is there a difference in effectivity between monobloc en bibloc MAD therapy.
Is monobloc and bibloc MAD therapy equally effective in treating OSA patients.
4. In what OSA patients is MAD therapy indicated.

Conclusions:

MAD therapy compared to placebo or conservative treatment

Faire Grade MAD therapy reduces the AHI compared to placebo or conservative treatment.
Sources: Sharples, 2016; Zhu, 2015; Okuno, 2014; Quaseem, 2013.

MAD therapy compared to placebo or conservative treatment

Fair Grade MAD treatment possibly reduces sleepiness, compared to placebo or conservative treatment.
Sources: Sharples, 2016; Zhu, 2015; Bratton, 2015; Okuno, 2014; Qaseem, 2013; Medical Advisory Secretary Ontario, 2009.

MAD therapy compared to placebo or conservative treatment

Low Grade MAD treatment improves the ODI compared to placebo or conservative treatment.
Sources: Zhu, 2015; Qaseem, 2013; De Britto Teixeira, 2013.

MAD therapy compared to placebo or conservative treatment

Very low Grade MAD therapy may not improve quality of live compared to placebo or conservative treatment.
Sources: Zhu, 2015; Qaseem, 2013.

Monobloc MAD therapy compared to Bibloc MAD therapy

Very low Grade Monobloc MAD therapy may improve the AHI compared to Bibloc MAD therapy.
Sources: Geoghegan, 2015; Zhou, 2012.

Monobloc MAD therapy compared to Bibloc MAD therapy

Very low Grade Monobloc and Bibloc MAD therapy may equally lower the sleepiness.
Sources: Zhou, 2012.

Monobloc MAD therapy compared to Bibloc MAD therapy.

Very low Grade Monobloc MAD therapy may improve ODI compared to Bibloc MAD therapy.
Sources: Zhou, 2012.

Monobloc MAD therapy compared to Bibloc MAD therapy

Low grade No conclusions can be made regarding Monobloc and Bibloc MAD therapy on the effect of quality of life and cognitive behaviour because of abcense of literature.

MAD therapy compared to CPAP

Fair Grade CPAP treatment in OSA patients may result in a greater AHI reduction compared tot MAD treatment in OSA patients.
Sources: Sharples, 2016; Okuno, 2014; Li, 2013; Medical Advisory Secretary Ontario, 2009; Doff, 2013.

MAD therapy compared to CPAP

Fair Grade CPAP treatment and MAD therapy may be equally effective in reducing sleepiness in OSA patients with an AHI between 5-30.
CPAP treatment may be more effective in reducing sleepiness compared to MAD treatment in OSA patient with an AHI \geq 30.
Sources: Sharples, 2016; Bratton, 2015; Li, 2013; Doff, 2013.

MAD therapy compared to CPAP

Low Grade It is unclear if there is a difference in the effectiveness of CPAP treatment and MAD treatment in improving ODI.
Sources: Li, 2012; Okuno, 2014; Doff, 2013.

MAD therapy compared to CPAP

Very low Grade CPAP treatment and MAD treatment may not improve cognitive behaviour.
Sources: Li, 2012.

Recommendations

- Consider using an individually made MAD in the treatment of OSA patients with an AHI $<$ 30. Factor of Importance in the consideration of MAD therapy are weight of the patient, comorbidity, dental status and preference of the patient.
- For OSA patients with an AHI $>$ 30 and/or a high BMI CPAP treatment is the first choice. MAD therapy may be second therapy of choice.
- The only proven oral appliance for OSA therapy is an individually made MAD.
- Since effectiveness of Monobloc and Bibloc treatment seems more or less equal, the choice of either of them may be based on personal preference of the patient and the doctor.
- A dental check by dentist, orthodontist or oral and maxillofacial surgeon should be done before MAD therapy for the OSA patient.
- Check the effectiveness of MAD therapy in OSA patients with an initial AHI $>$ 15 by P(S)G.
- In patients with an AHI $<$ 15
Consider a P(S)G when complaints of OSA persist or increase or when there is an unsuspected increase of weight of the patient.
- Side effect and therapy compliance of the MAD therapy should regularly be checked by the dental specialist or the dentist.
- MAD therapy in edentulous OSA patients with dental implants and an AHI $<$ may be considered.
- If dental side effects occur the patient should be informed and adequate action must be taken. This means adjustment of the MAD or considering an alternative for the MAD therapy.