

Monobloc or Adjustable MAD?

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I want to comment on the editorial entitled “When Is a Monobloc not a Monobloc? Cautions for Clinical Practice” published by Dr. Dort in the October 2016 issue of the *Journal of Dental Sleep Medicine*.¹ The author states that the practice of cutting apart and repositioning monobloc adjustable mandibular advancement devices (MADs) would be prohibitive in terms of clinician time and laboratory expense. According to Dr. Dort, the cost of a clinical process using monobloc MADs is likely to be more than that if an adjustable device is used. However, I think that some other factors also should be taken into account.

Usually in health economics, the principle of a cost-effectiveness analysis is to compare total costs and treatment effectiveness of various treatments over the long term. Based on such a comparison, it can be determined whether differences in cost are acceptable. When comparing the cost of monobloc with that of adjustable devices, not only the cost of titration but also differences in prices between MADs should be considered. These costs depend on the type of appliance, dental laboratory cost, and country of manufacture, but in general the cost of an adjustable device is much higher than that of a monobloc MAD. In the Netherlands, for example, the laboratory cost for patented, adjustable appliances is approximately fivefold the price of custom monobloc MADs. According to a study in an American publication,² the total fee for MADs with dental consultation, follow-up visits, radiographs, and the price of the appliance itself reportedly is in the range of \$2,500 to \$3,000. In addition, the frequency and cost of repositioning, repairs, and replacements of these devices should be compared.

Furthermore, health care decision-making about the effectiveness of treatments preferably should be based on large well-controlled, long-term, prospective randomized clinical trials. However, to my knowledge there are only two studies comparing the effectiveness of monobloc and adjustable MADs. The first study is a short-term investigation with a follow-up of 1 mo and a small sample size of only 24 patients with OSA.³ On the basis of this investigation it is suggested that adjustable MADs are more effective than monobloc appliances. One of the flaws of the study is that the mean total amount of mandibular advancement of the adjustable MADs was 85% of maximum compared to 75% in the monobloc group. It should be noted that in the literature a greater amount of mandibular advancement has been reported to be associated with greater improvement of OSA.⁴ The second study also suggests that adjustable MADs are more effective than monobloc MADs.⁵ However, this study was retrospective,

also short-term, and had no standardized duration of follow-up. No information was provided about possible differences in the amount of mandibular advancement between the two types of appliances.

It is obvious that over the past years many commercially available adjustable MADs have been promoted in journals and at congresses and courses. Nevertheless, I think that based on current research evidence it is difficult to draw conclusions regarding differences in total cost and effectiveness between treatments with monobloc and adjustable appliances, especially over the long term. In addition, the adverse effects of these appliances and treatment compliance need to be investigated. In my opinion, primarily high-quality prospective randomized trials are required to analyze the cost-effectiveness of both types of MADs before including recommendations regarding these appliances in clinical guidelines.

CITATION

Rimmelink HJ. Monobloc or adjustable MAD? *Journal of Dental Sleep Medicine*. 2017;4(1):21.

REFERENCES

1. Dort LC. When is a monobloc not a monobloc? Cautions for clinical practice. *Journal of Dental Sleep Medicine*. 2016;3(4):109.
2. Abad VC, Guilleminault C. Treatment options for obstructive sleep apnea. *Curr Treat Options. Neurol*. 2009;11(5):358–367.
3. Sari E, Menillo S. Comparison of titratable oral appliance and mandibular advancement splint in the treatment of patients with obstructive sleep apnea. *ISRN Dent*. 2011;2011:581692.
4. Aarab G, Lobbezoo F, Hamburger HL, Naeije M. Effects of an oral appliance with different mandibular protrusion positions at a constant vertical dimension on obstructive sleep apnea. *Clin Oral Investig*. 2010;14(3):339–345.
5. Lettieri CJ, Paolino N, Eliasson AH, Shah AA, Holley AB. Comparison of adjustable and fixed oral appliances for the treatment of obstructive sleep apnea. *J Clin Sleep Med*. 2011;7(5):439–445.

SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication November, 2016

Accepted for publication November, 2016

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DISCLOSURE STATEMENT

Dr. Rimmelink has indicated no financial conflicts of interest.