

## Medical Coverage Policy | Transpupillary Thermotherapy for Treatment of Choroidal Neovascularization



**EFFECTIVE DATE:** 02|17|2009

**POLICY LAST UPDATED:** 07|18|2017

### OVERVIEW

This policy documents the coverage determination for transpupillary thermotherapy (TTT) as it relates to the treatment of choroidal neovascularization (CNV) only. Transpupillary thermotherapy is a technique in which low-level heat is delivered through the pupil using a modified diode laser. TTT is designed to gently heat subfoveal choroidal lesions while limiting damage to the overlying retinal pigment epithelium.

### MEDICAL CRITERIA

None

### PRIOR AUTHORIZATION

Not applicable

### POLICY STATEMENT

#### BlueCHiP for Medicare and Commercial Products

Transpupillary thermotherapy for the treatment of choroidal neovascularization is not medically necessary as the clinical literature does not support its use.

### COVERAGE

Benefits may vary between groups/contracts. Please refer to the appropriate Evidence of Coverage or Subscriber Agreement for the applicable not medically necessary benefits/coverage.

### BACKGROUND

Choroidal neovascularization is a common cause of adult-onset blindness, most commonly associated with age-related macular degeneration (AMD). In its earliest stages, AMD is characterized by minimal visual impairment and the presence of large drusen and other pigmentary abnormalities on ophthalmoscopic examination. As AMD progresses, 2 distinctively different forms of degeneration may be observed. The first, called the atrophic, areolar or dry form, evolves slowly. Atrophic AMD is the most common form of degeneration and is often a precursor of the second form, the more devastating exudative neovascular form, also referred to as disciform or wet degeneration. The wet form is distinguished from the atrophic form by serous or hemorrhagic detachment of the retinal pigment epithelium and the development of CNV, sometimes called neovascular membranes. Risk of developing severe irreversible loss of vision is greatly increased by the presence of CNV.

The pattern of CNV, as revealed by fluorescein or indocyanine angiography, is further categorized as classic or occult. For example, classic CNV appears as an initial lacy pattern of hyperfluorescence followed by more irregular patterns as the dye leaks into the subretinal space. Occult CNV lacks the characteristic angiographic pattern, either due to the opacity of coexisting subretinal hemorrhage or, especially in CNV associated with AMD, by a tendency for epithelial cells to proliferate and partially or completely surround the new vessels. Interestingly, lesions consisting only of classic CNV carry a worse visual prognosis than those composed of only occult CNV, suggesting that the proliferative response that obscures new vessels may also favorably alter the clinical course of AMD.

There is ongoing research interest in the use of TTT to treat subfoveal choroidal neovascularization with an “occult” angiographic pattern. TTT is a technique in which heat is delivered to the choroid and retinal pigment epithelium through the pupil using a modified diode laser. This laser technique contrasts with the

laser used in standard photocoagulation therapy in that TTT uses a lower power laser for more prolonged periods of time and is designed to gently heat the choroidal lesion, thus limiting damage to the overlying retinal pigment epithelium.

Transpupillary thermotherapy is a technique in which low-level heat is delivered through the pupil using a modified diode laser. TTT is designed to gently heat subfoveal choroidal lesions while limiting damage to the overlying retinal pigment epithelium. Evidence on TTT is limited. The available studies comparing TTT with sham have not shown a benefit of this procedure. Although trials comparing TTT to photodynamic therapy show similar outcomes for the 2 treatments, there may be an increase in adverse events with TTT. TTT has not been compared with angiogenesis inhibitors. Evidence is insufficient to determine whether TTT is as beneficial as the established alternative; this procedure is considered not medically necessary.

## **CODING**

### **BlueCHiP for Medicare and Commercial Products**

There is no specific code for this service. To report, use the unlisted procedure, posterior segment: 67299. It is incorrect to report this service with CPT code 67220.

## **RELATED POLICIES**

None

## **PUBLISHED**

Provider Update, September 2017

Provider Update, January 2017

Provider Update, December 2015

Provider Update, October 2014

Provider Update, June 2012

Provider Update, October 2010

Provider Update, April 2009

## **REFERENCES**

1. Reichel E, Berrocal AM, Ip M et al. Transpupillary thermotherapy of occult subfoveal choroidal neovascularization in patients with age-related macular degeneration. *Ophthalmology* 1999; 106(10):1908-14.
2. Newsom RS, McAlister JC, Saeed M et al. Transpupillary thermotherapy (TTT) for the treatment of choroidal neovascularisation. *Br J Ophthalmol* 2001; 85(2):173-8.
3. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). TEC Special Report: Current and evolving strategies in the treatment of age-related macular degeneration. TEC Assessments 2005; Volume 20, Tab 11.
4. Gustavsson C, Agardh E. Transpupillary thermotherapy for occult subfoveal choroidal neovascularization: a 1-year, prospective randomized pilot study. *Acta Ophthalmol Scand* 2005; 83(2):148-53.
5. Myint K, Armbrrecht AM, Mon S et al. Transpupillary thermotherapy for the treatment of occult CNV in age-related macular degeneration: a prospective randomized controlled pilot study. *Acta Ophthalmol Scand* 2006; 84(3):328-32.
6. Odergren A, Algvere PV, Seregard S et al. A prospective randomised study on low-dose transpupillary thermotherapy versus photodynamic therapy for neovascular age-related macular degeneration. *Br J Ophthalmol* 2008; 92(6):757-61.
7. Odergren A, Algvere PV, Seregard S et al. Vision-related function after low-dose transpupillary thermotherapy versus photodynamic therapy for neovascular age-related macular degeneration. *Acta Ophthalmol* 2010; 88(4):426-30.
8. Tewari HK, Prakash G, Azad RV et al. A pilot trial for comparison of photodynamic therapy and transpupillary thermotherapy for the management of classic subfoveal choroidal neovascularization secondary to age-related macular degeneration. *Indian J Ophthalmol* 2007; 55(4):277-81.
9. Zhang X, Zhu X, Wang D et al. Low-power transpupillary thermotherapy combined with intravitreal triamcinolone acetonide for subfoveal choroidal neovascularization. *Ophthalmic Res* 2007; 39(4):241-2.

10. Nowak MS, Jurowski P, Grzybowski A et al. A prospective study on different methods for the treatment of choroidal neovascularization. The efficacy of verteporfin photodynamic therapy, intravitreal bevacizumab and transpupillary thermotherapy in patients with neovascular age-related macular degeneration. *Med Sci Monit* 2012; 18(6):CR374-80.
11. Soderberg AC, Algvere PV, Hengstler JC et al. Combination therapy with low-dose transpupillary thermotherapy and intravitreal ranibizumab for neovascular age-related macular degeneration: a 24-month prospective randomised clinical study. *Br J Ophthalmol* 2012; 96(5):714-8.
12. Agurto-Rivera R, Diaz-Rubio J, Torres-Bernal L et al. Intravitreal triamcinolone with transpupillary therapy for subfoveal choroidal neovascularization in age related macular degeneration. A randomized controlled pilot study [ISRCTN74123635]. *BMC Ophthalmol* 2005; 5:27.
13. Nagpal M, Nagpal K, Sharma S et al. Transpupillary thermotherapy for treatment of choroidal neovascularization secondary to age-related macular degeneration in Indian eyes. *Indian J Ophthalmol* 2003; 51(3):243-50.
14. Algvere PV, Libert C, Lindgarde G et al. Transpupillary thermotherapy of predominantly occult choroidal neovascularization in age-related macular degeneration with 12 months follow-up. *Acta Ophthalmol Scand* 2003; 81(2):110-7.
15. Thach AB, Sipperley JO, Dugel PU et al. Large-spot size transpupillary thermotherapy for the treatment of occult choroidal neovascularization associated with age-related macular degeneration. *Arch Ophthalmol* 2003; 121(6):817-20.
16. Kumar A, Prakash G, Singh RP. Transpupillary thermotherapy for idiopathic subfoveal choroidal neovascularization. *Acta Ophthalmol Scand* 2004; 82(2):205-8.
17. Peyman G, Tsipursky M, Gohel P et al. Regression of peripapillary choroidal neovascularization after oscillatory transpupillary thermotherapy and anti-VEGF pharmacotherapy. *Eur J Ophthalmol* 2011; 21(2):162-72.
18. Kawamura R, Ideta H, Hori H et al. Transpupillary thermotherapy for atypical central serous chorioretinopathy. *Clin Ophthalmol* 2012; 6:175-9.
19. Kwon HJ, Kim M, Lee CS et al. Treatment of serous macular detachment associated with circumscribed choroidal hemangioma. *Am J Ophthalmol* 2012; 154(1):137-45 e1.
20. Rougier MB, Francois L, Fourmaux E et al. Complications and lack of benefit after transpupillary thermotherapy for occult choroidal neovascularization: 1-year results. *Retina* 2005; 25(6):784-8.
21. Mason JO, 3rd, Colagross CC, Feist RM et al. Risk factors for severe vision loss immediately after transpupillary thermotherapy for occult subfoveal choroidal neovascularization. *Ophthalmic Surg Lasers Imaging* 2008; 39(6):460-5.
22. American Academy of Ophthalmology. Age-Related Macular Degeneration. Available online at: [www.aao.org/ppp](http://www.aao.org/ppp). Last accessed January, 2014.

**CLICK THE ENVELOPE ICON BELOW TO SUBMIT COMMENTS**

This medical policy is made available to you for informational purposes only. It is not a guarantee of payment or a substitute for your medical judgment in the treatment of your patients. Benefits and eligibility are determined by the member's subscriber agreement or member certificate and/or the employer agreement, and those documents will supersede the provisions of this medical policy. For information on member-specific benefits, call the provider call center. If you provide services to a member which are determined to not be medically necessary (or in some cases medically necessary services which are non-covered benefits), you may not charge the member for the services unless you have informed the member and they have agreed in writing in advance to continue with the treatment at their own expense. Please refer to your participation agreement(s) for the applicable provisions. This policy is current at the time of publication; however, medical practices, technology, and knowledge are constantly changing. BCBSRI reserves the right to review and revise this policy for any reason and at any time, with or without notice. Blue Cross & Blue Shield of Rhode Island is an independent licensee of the Blue Cross and Blue Shield Association.

