MASSACHUSETTS

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Medical Policy

Transpupillary Thermotherapy for Treatment of Choroidal Neovascularization

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Policy Number: 600

BCBSA Reference Number: 9.03.10A (For Plan internal use only)
NCD/LCD: NA

Related Policies

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- Gas Permeable Scleral Contact Lens, #371
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Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO Blue[SM] and Medicare PPO Blue[SM] Members

Transpupillary thermotherapy as treatment of choroidal neovascularization secondary to ocular conditions including but not limited to age-related macular degeneration is **INVESTIGATIONAL**.

Transpupillary thermotherapy for choroidal neovascularization is **INVESTIGATIONAL**.

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	This is **not** a covered service.
Commercial PPO and Indemnity	This is **not** a covered service.
Medicare HMO Blue℠	This is **not** a covered service.
Medicare PPO Blue℠	This is **not** a covered service.

CPT Codes / HCPCS Codes / ICD Codes

The following codes are included below for informational purposes. Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

There is no specific CPT code for this procedure.

Description

Transpupillary thermotherapy (TTT) 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.

Background

Age-related Macular Degeneration

Choroidal neovascularization (CNV) 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 choroidal neovascularization (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.

Other Treatments for CNV Secondary to AMD

Other available therapeutic options for CNV not addressed in this policy include photodynamic therapy (PDT) (Policy No. 9.03.08) and vascular endothelial growth factor antagonists or angiostatics (Policy No. 9.03.24). These may be administered alone or in combination. Angiostatic agents target various points in the pathway leading to new blood vessel formation (angiogenesis): messenger RNA, vascular endothelial growth factors, and endothelial cell proliferation, migration, and proteolysis. Pegaptanib (Macugen®, Eyetech and Pfizer), ranibizumab (Lucentis™, Genentech) and aflibercept (Eylea™, Regeneron) are approved by the U.S. Food and Drug Administration (FDA) for use in AMD. Bevacizumab (Avastin, Genentech) has been used off label to treat AMD. It is derived from the same murine monoclonal antibody precursor as ranibizumab and is approved by the FDA for the treatment of metastatic cancer of the colon or rectum. PDT has also been used with success in treating subfoveal CNV; the treatment has shown the greatest success in treating patients with classic CNV (as opposed to occult CNV), as defined angiographically. PDT as a treatment of CNV uses a nonthermal laser designed to activate verteporfin, the photosensitizing agent. Laser photocoagulation has been used to treat CNV; however, patients with subfoveal lesions are generally not candidates for this treatment due to the risk of an immediate reduction in central vision, outweighing any treatment advantage.

Central Serous Chorioretinopathy
Central serous chorioretinopathy (CSC) is the fourth most common retinopathy after AMD, diabetic retinopathy, and branch retinal vein occlusion. CSC refers to an idiopathic disease in which there is a serious detachment of the macula due to leakage of fluid from the choriocapillaris through the retinal pigment epithelium. CSC can be divided into acute, recurrent, and chronic conditions. Usually, serous retinal detachments have spontaneous resolution with recovery of visual function; however, a subset of patients may experience permanent deterioration of visual function attributable to chronic CSC or multiple recurrences of CSC. The pathogenesis of CSC is believed to be ischemia and inflammation, which lead to abnormal permeability of the inner choroid and elevation of the retinal pigment epithelium, causing serous epithelial detachments. The separated retinal pigment epithelium can then undergo tiny rips (blowouts) with a break in continuity. The change in permeability of the retinal pigment epithelium results in focal leakage and retinal detachment. Neovascularization can occur as a secondary complication. In about 90% of cases, CSC resolves spontaneously with detachment resolution within 3 months. The traditional management of acute CSC is observation. Recurring or chronic CSC can be treated with focal laser photocoagulation if the leaks are extrafoveal. Although laser may shorten the duration of symptoms, it does not have any impact on the final vision or the recurrence rate of CSC. In addition, laser photocoagulation causes collateral damage creating symptomatic scotomas and a risk of triggering secondary CNV. PDT is not a standard treatment for CSC due to complications that may include CNV, although low-fluence PDT is being evaluated.

Other Choroidal Neovascular Conditions
Other choroidal neovascular conditions include pathologic myopia, presumed ocular histoplasmosis syndrome, angioid streaks, idiopathic CNV, uveitis, choroidal rupture or trauma, and chorioretinal scars. Treatments that have been evaluated for CNV not related to AMD include submacular surgery, laser photocoagulation, and PDT. Efficacy of these treatment modalities is limited.

Summary
Transpupillary thermotherapy (TTT) 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 investigational.

Policy History
Date	Action
11/2022	Annual policy review. Policy updated with literature review through October 2022. No

	references added. Policy statements unchanged.
2/2020	Policy updated with literature review through February 1, 2020, references added. Policy statements unchanged.
8/2014	Medical policy ICD10 remediation: Formatting, editing and coding updates. No changes to policy statements.
8/2013	Title and policy expanded to include other choroidal vascular conditions. Effective 8/1/2013.
2/2011	Annual policy review. New references added.
4/2010	Continues to benchmark the investigational non-coverage status for this procedure.

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:
Medical Policy Terms of Use
Managed Care Guidelines
Indemnity/PPO Guidelines
Clinical Exception Process
Medical Technology Assessment Guidelines

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