



**INFORME DE BÚSQUEDA SISTEMÁTICA DE EVIDENCIA DE LOS EFECTOS
DESEABLES E INDESEABLES**

Guía de Práctica Clínica Estudio, Manejo Médico y Quirúrgico
de la Hiperplasia Benigna de Próstata - 2017

ÍNDICE

TABLA RESUMEN	2
ESTRATEGIA DE BÚSQUEDA	3
CRITERIOS DE INCLUSIÓN	3
RECOLECCIÓN, ANÁLISIS Y SÍNTESIS DE DATOS	4
Selección de las revisiones	4
Mapeo de la evidencia	4
Actualización – “Living”	4
Apéndice 1. Estrategias de búsqueda	5
Apéndice 2. Diagrama de flujo PRISMA	7
Apéndice 3. Referencias seleccionadas	8

TABLA RESUMEN

Problema de salud	Estudio, manejo médico y quirúrgico de la hiperplasia benigna de próstata
ICD10	N40
Fecha de entrega	08/10/2017
Investigador responsable	Gabriel Rada Giacaman
Número de revisiones sistemáticas	200
Número de preguntas	13
L·OVE	Prostatic hyperplasia
L·OVE URL	https://love.epistemonikos.org/#/diseases/prostatic_hyperplasia/about

ESTRATEGIA DE BÚSQUEDA

Se realizaron búsquedas en Epistemonikos, una base de datos exhaustiva de revisiones sistemáticas relevantes para la toma de decisiones en salud. No se aplican restricciones en base al idioma o estado de publicación. La búsqueda de evidencia fue realizada en las siguientes bases de datos¹ con las estrategias descritas en el Apéndice 1.

1. Cochrane database of systematic reviews (CDSR)
2. Database of Abstracts of Reviews of Effectiveness (DARE)
3. HTA Database
4. PubMed
5. LILACS
6. CINAHL.
7. PsychINFO.
8. EMBASE.
9. EPPI-Centre Evidence Library
10. 3ie Systematic Reviews and Policy Briefs Campbell Library
11. Clinical Evidence.
12. SUPPORT Summaries
13. WHO Institutional Repository for Information Sharing
14. NICE public health guidelines and systematic reviews
15. ACP Journal Club.
16. Evidencias en Pediatría
17. The JBI Database of Systematic Reviews and Implementation Reports

CRITERIOS DE INCLUSIÓN

Consideramos todas las revisiones sistemáticas que están sintetizando estudios primarios (tanto experimentales como observacionales) de acuerdo a la definición empleada por la Colaboración Cochrane y la declaración PRISMA².

Una revisión elegible debe cumplir con los siguientes criterios operacionales:

1. Reporta una búsqueda en al menos una base de datos electrónica.
2. Reporta al menos uno de los siguientes criterios inclusión de los estudios:
 - **Tipo de participantes:** Se incluyen todas las revisiones sistemáticas que resuman estudios que respondan la pregunta acerca de intervenciones para el alivio del dolor por cáncer avanzado y cuidados paliativos en humanos.

¹ La actualización se realiza de manera semanal. Se encuentra disponible en la plataforma digital un sistema de alerta que permite informar a través de correo electrónico la publicación de nuevos estudios que dan respuesta a las preguntas definidas, de manera de mantener continuamente actualizada la evidencia.

² “Una revisión sistemática intenta recopilar toda la evidencia empírica para responder a una pregunta de investigación específica, que cumple con criterios previamente definidos. Utiliza métodos explícitos y sistemáticos, que se eligen con miras a minimizar el sesgo, de manera de entregar hallazgos confiables que permitan sacar conclusiones y tomar decisiones”.

- **Tipo de desenlaces:** Se incluyen revisiones que presentan una síntesis (cuantitativa o cualitativa) de al menos un desenlace importante para el paciente u otra información relevante para tomar decisiones poblacionales o individuales acerca de intervenciones para el alivio del dolor por cáncer avanzado y cuidados paliativos en humanos.

RECOLECCIÓN, ANÁLISIS Y SÍNTESIS DE DATOS

SELECCIÓN DE LAS REVISIONES

Al menos dos revisores, de manera independiente, realizaron el cribado de los títulos y resúmenes para identificar los artículos relevantes. El texto completo de las revisiones potencialmente elegibles fue recuperado y evaluado, de manera independiente, para su inclusión final. Un tercer investigador resolvió cualquier discrepancia que pudiera haberse provocado entre los distintos revisores.

MAPEO DE LA EVIDENCIA

Con el objetivo de generar un listado exhaustivo de todas las posibles preguntas relacionadas con el tópico del L·OVE: *Prostatic hyperplasia*³, se realiza la agrupación de las revisiones resultantes en formato PICO, es decir: población, intervención, comparación y desenlace [*outcome*]) utilizamos las siguientes fuentes:

1. Guías y documentos
2. Criterios de inclusión de las revisiones sistemáticas identificadas
3. Consulta con expertos
4. Retroalimentación de los usuarios

Como resultado final la plataforma incluye toda la evidencia disponible en revisiones sistemáticas y sus estudios primarios incluidos, segregada por nodos de evidencia que representan cada una de las preguntas priorizadas para actualización de la guía (Ver “Diagrama de flujo PRISMA” en Apéndice 2 y “Referencia Seleccionada” en Apéndice 3).

ACTUALIZACIÓN – “LIVING”

Todas las búsquedas a través de esta plataforma se mantienen continuamente actualizada gracias a la tecnología implementada en el buscador de Epistemonikos y sus distintos colaboradores. Por lo cual, tanto la cantidad de revisiones, preguntas, entre otros datos cambian continuamente. Los datos presentados en este informe son los correspondientes a la fecha de entrega.

³Ver resultados de la búsqueda en: https://love.epistemonikos.org/#/diseases/prostatic_hyperplasia/about

APÉNDICE 1. ESTRATEGIAS DE BÚSQUEDA

Cochrane Library - Cochrane database of systematic reviews (CDSR)

<http://www.thecochranelibrary.com>

((prostatic AND hyperplasia) OR bph) , in Title, Abstract, Keywords: Cochrane Reviews (Reviews NOT protocols)

Medline/PubMed - US National Library of Medicine

<http://www.ncbi.nlm.nih.gov/pubmed/>

((prostatic AND hyperplasia) OR bph) AND (MEDLINE[Title/Abstract] OR (systematic[Title/Abstract] AND review[Title/Abstract]) OR meta analysis[Publication Type])

EMBASE (Excerpta Medica dataBASE)

<http://www.embase.com>

Frequency of search: weekly

((prostatic AND hyperplasia) OR bph) AND meta-analysis.tw. OR systematic review.tw

CINAHL (Cumulative Index to Nursing and Allied Health Literature)

<https://www.ebscohost.com/nursing/products/cinahl-databases/the-cinahl-database>

(prostatic AND hyperplasia) OR bph AND ((TI meta analys* or AB meta analys*) or (TI systematic review or AB systematic review))

PsycINFO

<http://www.apa.org/pubs/databases/psycinfo>

((prostatic AND hyperplasia) OR bph) AND (meta-analysis OR search*)

LILACS (Literatura Latinoamericana y del Caribe en Ciencias de la Salud)

<http://lilacs.bvsalud.org/en/>

((prostatic AND hyperplasia) OR bph) AND (tw:"revision sistematica" or tw:"revisao sistematica" or tw:"systematic review") or ((MH:"Literatura de Revision como asunto" OR MH:"Metanalisis como asunto" OR PT:Revision OR PT:Metanalisis) and (TW:Metaanal\$ OR TW:"Meta-analysis" OR TW:"Meta-analise" OR TW:"Meta-analysis" OR TI:overview\$ or TW:"estudio sistematico" OR TW:"systematic study" OR TW:"estudo sistematico" OR TI:review OR TI:revisao OR TI:revision))

DARE (Database of Abstracts of Reviews of Effectiveness) - Centre for Reviews and Dissemination, University of York

<http://www.crd.york.ac.uk/CRDWeb/>

((prostatic AND hyperplasia) OR bph), in Any field: CRD assessed review (bibliographic)/ CRD assessed review (full abstract)

HTA

Database

<http://www.crd.york.ac.uk/CRDWeb/>

((prostatic AND hyperplasia) OR bph), in Any field

The Campbell Collaboration Online Library

<https://www.campbellcollaboration.org/library.html>

((prostatic AND hyperplasia) OR bph), in Title: Review

JBI Database of Systematic Reviews and Implementation Reports

<http://journals.lww.com/jbisrir/pages>

((prostatic AND hyperplasia) OR bph) AND (review OR meta*), in All fields

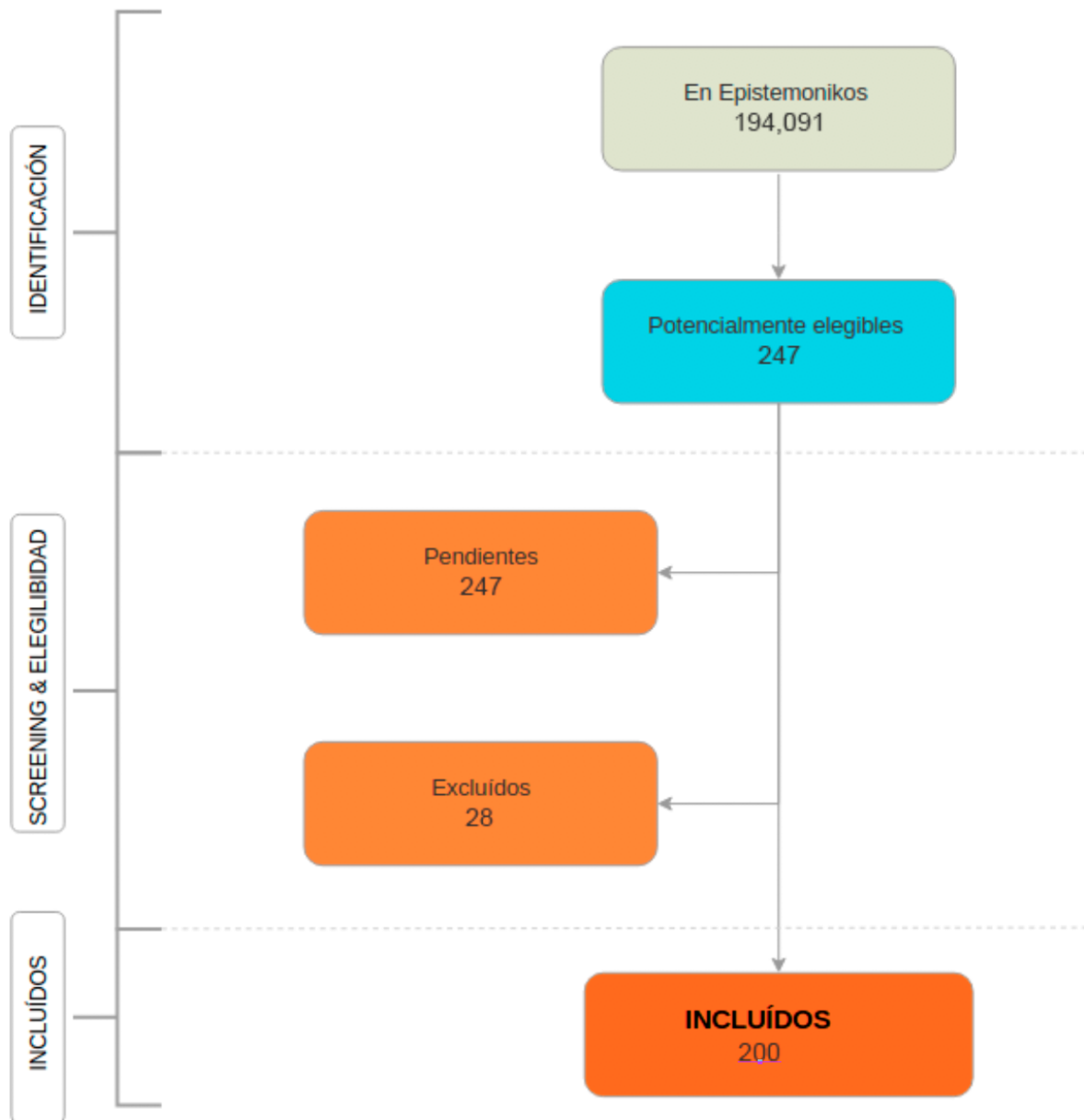
EPPI-Centre Evidence Library

<http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=56>

(prostatic AND hyperplasia) OR bph

All records in chronological list (<http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=62>)

APÉNDICE 2. DIAGRAMA DE FLUJO PRISMA



APÉNDICE 3. REFERENCIAS SELECCIONADAS

1. Boccon-Gibod L. Benign prostatic hyperplasia: surgical versus nonsurgical treatment. A critical review. *European urology*. 1991;20 Suppl 1:59-62.
2. da Silva RD, Bidikov L, Michaels W, Gustafson D, Molina WR, Kim FJ. Bipolar energy in the treatment of benign prostatic hyperplasia: a current systematic review of the literature. *The Canadian journal of urology*. 2015;22(5 Suppl 1):30-44.
3. Presicce F, De Nunzio C, Gacci M, Finazzi Agrò E, Tubaro A. Non-invasive ultrasound measurements in male patients with luts and benign prostatic obstruction: implication for diagnosis and treatment: a systematic review. *Minerva urologica e nefrologica = The Italian journal of urology and nephrology*. 2016;
4. Yuan J.-Q., Mao C., Wong S.Y.-S., Yang Z.-Y., Fu X.-H., Dai X.-Y., Tang J.-L.. Comparative Effectiveness and Safety of Monodrug Therapies for Lower Urinary Tract Symptoms Associated With Benign Prostatic Hyperplasia: A Network Meta-analysis. *Medicine (United States)*. 2015;94(27):e974.
5. Lowe FC, Ku JC. Phytotherapy in treatment of benign prostatic hyperplasia: a critical review. *Urology*. 1996;48(1):12-20.
6. Jiang Y, Long YF. [Effects of finasteride on hematuria associated with benign prostatic hyperplasia: a meta-analysis]. *Zhonghua nan ke xue = National journal of andrology*. 2010;16(8):726-9.
7. Filson CP, Hollingsworth JM, Clemens JQ, Wei JT. The efficacy and safety of combined therapy with α -blockers and anticholinergics for men with benign prostatic hyperplasia: a meta-analysis. *The Journal of urology*. 2013;190(6):2153-60.
8. Boyle P, Robertson C, Lowe F, Roehrborn C. Meta-analysis of clinical trials of permixon in the treatment of symptomatic benign prostatic hyperplasia. *Urology*. 2000;55(4):533-9.
9. Lin Y, Wu X, Xu A, Ren R, Zhou X, Wen Y, Zou Y, Gong M, Liu C, Su Z, Herrmann TR. Transurethral enucleation of the prostate versus transvesical open prostatectomy for large benign prostatic hyperplasia: a systematic review and meta-analysis of randomized controlled trials. *World journal of urology*. 2015;34(9):1207-19.
10. McPartland JM, Pruitt PL. Benign prostatic hyperplasia treated with saw palmetto: a literature search and an experimental case study. *The Journal of the American Osteopathic Association*. 2000;100(2):89-96.
11. Kathrins M, Doersch K, Nimeh T, Canto A, Niederberger C, Seftel A. The Relationship between Testosterone Replacement Therapy and Lower Urinary Tract Symptoms: A Systematic Review. *Urology*. 2015;88:22-32.
12. Wang XM, Sun L, Zhang Z, Shi XH, Zhang YG, Wei D, Wan B, Yang Z, Wang JY. [Correlation of androgen receptor CAG repeats with the risks of benign prostatic hyperplasia and prostate cancer: a meta-analysis]. *Zhonghua nan ke xue = National journal of andrology*. 2014;20(2):172-6.
13. Singh A., Jha R.K., Kapoor A., Gupta J.. Tadalafil in benign prostatic hyperplasia: Protocol for the systematic review of adverse events. *Value in Health*. 2014;17(7):A810-A811.
14. Dong Z, Wang Z, Yang K, Liu Y, Gao W, Chen W. Tamsulosin versus terazosin for benign prostatic hyperplasia: a systematic review. *Systems biology in reproductive medicine*. 2009;55(4):129-36.
15. Marra G, Sturch P, Oderda M, Tabatabaei S, Muir G, Gontero P. Systematic review of lower urinary tract symptoms/benign prostatic hyperplasia surgical treatments on men's ejaculatory function: Time for a bespoke approach?. *International journal of urology : official journal of the Japanese Urological Association*. 2015;23(1):22-35.
16. Wilde MI, Goa KL. Finasteride: an update of its use in the management of symptomatic benign prostatic hyperplasia. *Drugs*. 1999;57(4):557-81.
17. MacDonald R, Ishani A, Rutks I, Wilt TJ. A systematic review of Cernilton for the treatment of benign prostatic hyperplasia. *BJU international*. 2000;85(7):836-41.

18. Zeng X.-T., Su X.-J., Li S., Weng H., Liu T.-Z., Wang X.-H.. Association between SRD5A2 rs523349 and rs9282858 polymorphisms and risk of benign prostatic hyperplasia: A meta-analysis. *Frontiers in Physiology*. 2017;8(SEP).
19. Emberton M, Fitzpatrick JM, Garcia-Losa M, Qizilbash N, Djavan B. Progression of benign prostatic hyperplasia: systematic review of the placebo arms of clinical trials. *BJU international*. 2008;102(8):981-6.
20. Peyronnet B, Seisen T, Phé V, Misrai V, de la Taille A, Rouprêt M. [Lower urinary tract symptoms related to benign prostatic hyperplasia and erectile dysfunction: A systematic review]. *Presse medicale (Paris, France : 1983)*. 2016;Part 1(2 Pt 1):145-153.
21. Jones P, Rajkumar GN, Rai BP, Aboumarzouk OM, Cleaveland P, Srirangam SJ, Somani BK. Medium-term Outcomes of Urolift (Minimum 12 Months Follow-up): Evidence From a Systematic Review. *Urology*. 2016;97:20-24.
22. Feng S, Tian Y, Liu W, Li Z, Deng T, Li H, Wang K. Prostatic Arterial Embolization Treating Moderate-to-Severe Lower Urinary Tract Symptoms Related to Benign Prostate Hyperplasia: A Meta-Analysis. *Cardiovascular and interventional radiology*. 2016;40(1):22-32.
23. Wang JY, Fu YY, Kang DY. The Association Between Metabolic Syndrome and Characteristics of Benign Prostatic Hyperplasia: A Systematic Review and Meta-Analysis. *Medicine*. 2016;95(19):e3243.
24. Gacci M., Corona G., Salvi M., Vignozzi L., McVary K.T., Kaplan S.A., Roehrborn C.G., Serni S., Mirone V., Carini M., Maggi M.. Systematic review and meta-analysis of the use of phosphodiesterase type 5 inhibitors (pde5-is) alone or in combination with alpha blockers for lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH). *European Urology, Supplements*. 2012;:e644-e644a.
25. Toohar R, Sutherland P, Costello A, Gilling P, Rees G, Maddern G. A systematic review of holmium laser prostatectomy for benign prostatic hyperplasia. *The Journal of urology*. 2004;171(5):1773-81.
26. Lim SY, Laengvejkjal P, Panikkath R, Nugent K. The association of α -blockers and 5- α reductase inhibitors in benign prostatic hyperplasia with fractures. *The American journal of the medical sciences*. 2014;347(6):463-71.
27. Richard M Hoffman, Roderick MacDonald, Timothy Wilt. Laser prostatectomy for benign prostatic obstruction. *Cochrane Database of Systematic Reviews*. 2009;(1):CD001987.
28. Kim SJ, Shin IS, Eun SJ, Whangbo TK, Kim JW, Cho YS, Kim JC. Evidence Is Enough?: A Systematic Review and Network Meta-Analysis of the Efficacy of Tamsulosin 0.2 mg and Tamsulosin 0.4 mg as an Initial Therapeutic Dose in Asian Benign Prostatic Hyperplasia Patients. *International neurourology journal*. 2017;21(1):29-37.
29. Conte T., Truzzi J.C., Tannus G., Fonseca M.. Systematic review comparing the efficacy of the 5-alpha reductase inhibitors (5-ARIs) dutasteride and finasteride in the treatment of benign prostatic hyperplasia (BPH). *Value in Health*. 2012;:A192.
30. Park T., Shamliyan T.A.. Dutasteride for benign prostatic hyperplasia: A systematic review and meta-analysis. *Value in Health*. 2011;:A74.
31. Ding M, Nian YQ, Hu SB, Yi L, Chen FZ, Peng M, Wang YH. [Safety and effectiveness of GreenLight 120-W laser photoselective vaporization of the prostate for benign prostatic hyperplasia: A meta-analysis]. *Zhonghua nan ke xue = National journal of andrology*. 2015;21(7):646-54.
32. Lee SWH, Chan EMC, Lai YK. The global burden of lower urinary tract symptoms suggestive of benign prostatic hyperplasia: A systematic review and meta-analysis. *Scientific reports*. 2017;7(1):7984.
33. Rasch A, Gruber S, Perleth M. [Learning curve in laser treatment of benign prostatic syndrome: a systematic review]. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen*. 2013;107(4-5):335-43.

34. Corona G, Tirabassi G, Santi D, Maseroli E, Gacci M, Dicuio M, Sforza A, Mannucci E, Maggi M. Sexual dysfunction in subjects treated with inhibitors of 5 α -reductase for benign prostatic hyperplasia: a comprehensive review and meta-analysis. *Andrology*. 2017;5(4):671-678.
35. Vande Griend JP, Linnebur SA. Inhaled anticholinergic agents and acute urinary retention in men with lower urinary tract symptoms or benign prostatic hyperplasia. *The Annals of pharmacotherapy*. 2012;46(9):1245-9.
36. Edwards JE, Moore RA. Finasteride in the treatment of clinical benign prostatic hyperplasia: a systematic review of randomised trials. *BMC urology*. 2002;2:14.
37. Cindolo L, Marchioni M, Emiliani E, De Francesco P, Primiceri G, Castellan P, Schips L. Bladder neck contracture after surgery for benign prostatic obstruction: a literature review. *Minerva urologica e nefrologica = The Italian journal of urology and nephrology*. 2016;69(2):133-143.
38. Shim S., Yoon S., Kim K., Bae M., Kim H., Lee W.. A systematic review of efficacy of tamsulosin as the first-line treatment for lower urinary tract symptoms(LUTS) associated with benign prostatic hyperplasia(BPH) in japan. *Neurourology and Urodynamics*. 2013;:716-718.
39. Zhao CB, Li JC, Yuan PQ, Hong YQ, Lu B, Zhao SC. [A meta-analysis of holmium laser enucleation of the prostate for benign prostatic hyperplasia]. *Zhonghua nan ke xue = National journal of andrology*. 2011;17(12):1112-20.
40. Health Quality Ontario. Energy delivery systems for treatment of benign prostatic hyperplasia: an evidence-based analysis. *Ontario health technology assessment series*. 2006;6(17):1-121.
41. Ding H, Du W, Hou ZZ, Wang HZ, Wang ZP. Silodosin is effective for treatment of LUTS in men with BPH: a systematic review. *Asian journal of andrology*. 2013;15(1):121-8.
42. Kahokehr A.A., Nixon A., Naidoo T., Barker S., Hill A.. Nonsteroidal anti-inflammatory drugs for LUTS in BPH: Systematic review and meta-analysis of randomised controlled trials. *BJU International*. 2012;:24-25.
43. Garimella PS, Fink HA, Macdonald R, Wilt TJ. Naftopidil for the treatment of lower urinary tract symptoms compatible with benign prostatic hyperplasia. *Cochrane database of systematic reviews (Online)*. 2009;(4):CD007360.
44. Kirby R.. Meta-analysis: Creating a level playing field for the patient with symptomatic benign prostatic hyperplasia?. *BJU International*. 2004;94(1):2-3.
45. Kim S.J., Kim K.H., Cho S.T., Kim H.G., Yoon H.. Evidence of tamsulosin 0.4 mg as initial dose in asian BPH patients: Consideration through network meta-analysis of randomized controlled trials. *Neurourology and Urodynamics*. 2017;:S56-S57.
46. Timothy J Wilt, Areef Ishani. Pygeum africanum for benign prostatic hyperplasia. *Cochrane Database of Systematic Reviews*. 1998;(1):CD001044.
47. Mudiayala R, Ahmed A. Effect of terazosin on clinical benign prostatic hyperplasia in older adults. *Journal of the American Geriatrics Society*. 2003;51(3):424-6.
48. Wang K., Li Y., Teng J.-F., Zhou H.-Y., Xu D.-F., Fan Y.. Transurethral plasmakinetic resection of the prostate is a reliable minimal invasive technique for benign prostate hyperplasia: A meta-analysis of randomized controlled trials. *Asian Journal of Andrology*. 2015;17(1):135-142.
49. Zhao J, Wu Q, Hu X, Dong X, Wang L, Liu Q, Long Z, Li L. Comparative study of serum zinc concentrations in benign and malignant prostate disease: A Systematic Review and Meta-Analysis. *Scientific reports*. 2016;6:25778.
50. Gacci M., Ficarra V., Sebastianelli A., Corona G., Serni S., Shariat S.F., Maggi M., Zattoni F., Carini M., Novara G.. A systematic review and meta-analysis on the ejaculatory dysfunction after medical treatment for BPH: Data from 30 thousand patients enrolled in 23 RCTs. *European Urology, Supplements*. 2014;:e1086.
51. Laydner HK, Oliveira P, Oliveira CR, Makarawo TP, Andrade WS, Tannus M, Araújo JL. Phosphodiesterase 5 inhibitors for lower urinary tract symptoms secondary to benign prostatic hyperplasia: a systematic review. *BJU international*. 2011;107(7):1104-9.
52. Hollingsworth JM, Wei JT. Does the combination of an alpha1-adrenergic antagonist with a 5alpha-reductase inhibitor improve urinary symptoms more than either monotherapy?. *Current opinion in urology*. 2010;20(1):1-6.

53. Zong HT, Peng XX, Yang CC, Zhang Y. A systematic review of the effects and mechanisms of preoperative 5 α -reductase inhibitors on intraoperative haemorrhage during surgery for benign prostatic hyperplasia. *Asian journal of andrology*. 2011;13(6):812-8.
54. Kaye JD, Smith AD, Badlani GH, Lee BR, Ost MC. High-energy transurethral thermotherapy with CoreTherm approaches transurethral prostate resection in outcome efficacy: a meta-analysis. *Journal of endourology / Endourological Society*. 2008;22(4):713-8.
55. Li S, Kwong JS, Zeng XT, Ruan XL, Liu TZ, Weng H, Guo Y, Xu C, Yan JZ, Meng XY, Wang XH. Plasmakinetic resection technology for the treatment of benign prostatic hyperplasia: evidence from a systematic review and meta-analysis. *Scientific reports*. 2015;5:12002.
56. Thangasamy IA, Chalasani V, Bachmann A, Woo HH. Photoselective vaporisation of the prostate using 80-W and 120-W laser versus transurethral resection of the prostate for benign prostatic hyperplasia: a systematic review with meta-analysis from 2002 to 2012. *European urology*. 2012;62(2):315-23.
57. Shim SR, Kim JH, Choi H, Lee WJ, Kim HJ, Bae MY, Hwang SD, Kim KH, Bae JH, Yoon SJ. General effect of low-dose tamsulosin (0.2 mg) as a first-line treatment for lower urinary tract symptoms associated with benign prostatic hyperplasia: a systematic review and meta-analysis. *Current medical research and opinion*. 2014;31(2):1-36.
58. Shim SR, Kanhai K, Ko YM, Kim JH. Efficacy and safety of prostatic arterial embolization: Systematic review with meta-analysis and meta-regression. *The Journal of urology*. 2016;197(2):465-479.
59. Robert G, Descazeaud A, Delongchamps NB, Cornu JN, Azzouzi AR, Haillet O, Devonec M, Fourmarier M, Ballereau C, Lukacs B, Dumonceau O, Saussine C, de la Taille A, Comité des troubles mictionnels de l'homme de l'Association française d'urologie. [Benign prostatic hyperplasia medical treatment: systematic review of the literature by the CTMH/AFU]. *Progrès en urologie : journal de l'Association française d'urologie et de la Société française d'urologie*. 2012;22(1):7-12.
60. Chancellor MB, Elovic E, Esquenazi A, Naumann M, Segal KR, Schiavo G, Smith CP, Ward AB. Evidence-based review and assessment of botulinum neurotoxin for the treatment of urologic conditions. *Toxicon : official journal of the International Society on Toxinology*. 2013;67:129-40.
61. Gacci M, Ficarra V, Sebastianelli A, Corona G, Serni S, Shariat SF, Maggi M, Zattoni F, Carini M, Novara G. Impact of medical treatments for male lower urinary tract symptoms due to benign prostatic hyperplasia on ejaculatory function: a systematic review and meta-analysis. *The journal of sexual medicine*. 2014;11(6):1554-66.
62. Plante MK, Folsom JB, Zvara P. Prostatic tissue ablation by injection: a literature review. *The Journal of urology*. 2004;172(1):20-6.
63. Wang S, Mao Q, Lin Y, Wu J, Wang X, Zheng X, Xie L. Body mass index and risk of BPH: a meta-analysis. *Prostate cancer and prostatic diseases*. 2012;15(3):265-72.
64. Zhu YP, Dai B, Zhang HL, Shi GH, Ye DW. Impact of preoperative 5 α -reductase inhibitors on perioperative blood loss in patients with benign prostatic hyperplasia: a meta-analysis of randomized controlled trials. *BMC urology*. 2015;15(1):47.
65. Ooi SL, Pak SC. *Serenoa repens* for Lower Urinary Tract Symptoms/Benign Prostatic Hyperplasia: Current Evidence and its Clinical Implications in Naturopathic Medicine. *Journal of alternative and complementary medicine (New York, N.Y.)*. 2017;23(8):599-606.
66. Hoffman RM, MacDonald R, Monga M, Wilt TJ. Transurethral microwave thermotherapy vs transurethral resection for treating benign prostatic hyperplasia: a systematic review. *BJU international*. 2004;94(7):1031-6.
67. La Torre, A., Giupponi, G., Duffy, D., Conca, A., Cai, T., Scardigli, A.. Sexual dysfunction related to drugs: A critical review. Part V: α -blocker and 5-ARI drugs. *Pharmacopsychiatry*. 2016;49(1).
68. Presicce F, De Nunzio C, Tubaro A. Is early benign prostatic hyperplasia (BPH) treatment worthwhile?. *Urologia*. 2017;84(3):0.

69. Wu XJ, Zhi Y, Zheng J, He P, Zhou XZ, Li WB, Zhou ZS. Dutasteride on benign prostatic hyperplasia: a meta-analysis on randomized clinical trials in 6460 patients. *Urology*. 2014;83(3):539-43.
70. Biester K, Skipka G, Jahn R, Buchberger B, Rohde V, Lange S. Systematic review of surgical treatments for benign prostatic hyperplasia and presentation of an approach to investigate therapeutic equivalence (non-inferiority). *BJU international*. 2012;109(5):722-30.
71. Spångberg A, Dahlgren H. [Benign prostatic hyperplasia with bladder outflow obstruction. A systematic review]. *Läkartidningen*. 2013;110(13-14):682-5.
72. Timothy J Wilt, Areef Ishani, Roderick MacDonald, Gerold Stark, Cynthia D Mulrow, Joseph Lau. Beta- sitosterols for benign prostatic hyperplasia. *Cochrane Database of Systematic Reviews*. 2008;(3):CD001043.
73. Novara G, Galfano A, Ficarra V, Artibani W. Anticholinergic drugs in patients with bladder outlet obstruction and lower urinary tract symptoms: A systematic review. *European urology*. 2006;50(4):675-83.
74. Farah S.S., Winter M.W., Rajarubendra N., Dyer D.R., Spernat D., Pham T., Appu S.. Photoselective vaporisation & holmium laser enucleation of the prostate versus transurethral resection of the prostate due to benign prostatic hyperplasia: A systematic review and meta-analysis. *BJU International*. 2013;:33.
75. Treharne C, Crowe L, Booth D, Ihara Z. Economic Value of the Transurethral Resection in Saline System for Treatment of Benign Prostatic Hyperplasia in England and Wales: Systematic Review, Meta-analysis, and Cost-Consequence Model. *European urology focus*. 2016;
76. Misraï V, Rouprêt M, Guillotreau J, Bordier B, Bruyère F. [Greenlight(®) photoselective vaporisation for benign prostatic hyperplasia: a systematic review]. *Progrès en urologie : journal de l'Association française d'urologie et de la Société française d'urologie*. 2013;23(2):77-87.
77. Vignozzi L., Gacci M., Corona G., Salvi M., Serni S., De Nunzio C., Tubaro A., Carini M., Maggi M.. Obesity in metabolic syndrome as inducer of benign prostatic enlargement: A systematic review and meta-analysis. *Eating and Weight Disorders*. 2014;19(3):426.
78. Ishizuka O, Nishizawa O, Hirao Y, Ohshima S. Evidence-based meta-analysis of pharmacotherapy for benign prostatic hypertrophy. *International journal of urology : official journal of the Japanese Urological Association*. 2002;9(11):607-12.
79. Wang XH, Wang X, Shi MJ, Li S, Liu T, Zhang XH. Systematic review and meta-analysis on phosphodiesterase 5 inhibitors and α -adrenoceptor antagonists used alone or combined for treatment of LUTS due to BPH. *Asian journal of andrology*. 2015;17(6):1022-32.
80. Li Z, Chen P, Wang J, Mao Q, Xiang H, Wang X, Wang X, Zhang X. The impact of surgical treatments for lower urinary tract symptoms/benign prostatic hyperplasia on male erectile function: A systematic review and network meta-analysis. *Medicine*. 2016;95(24):e3862.
81. Zong HT, Peng XX, Yang CC, Zhang Y. The impact of transurethral procedures for benign prostate hyperplasia on male sexual function: a meta-analysis. *Journal of andrology*. 2012;33(3):427-34.
82. Alcaraz A, Hammerer P, Tubaro A, Schröder FH, Castro R. Is there evidence of a relationship between benign prostatic hyperplasia and prostate cancer? Findings of a literature review. *European urology*. 2009;55(4):864-73.
83. Sánchez-Gómez LM, Polo-deSantos M, Gómez-Sancha F, Luengo-Matos S. Efficacy and Safety of the Urolift® System for the Treatment of Benign Prostate Hyperplasia Symptoms: Systematic Review. *Actas urológicas españolas*. 2014;39(5):311-319.
84. Zhou Y, Xue B, Mohammad NA, Chen D, Sun X, Yang J, Dai G. Greenlight high-performance system (HPS) 120-W laser vaporization versus transurethral resection of the prostate for the treatment of benign prostatic hyperplasia: a meta-analysis of the published results of randomized controlled trials. *Lasers in medical science*. 2016;31(3):485-95.
85. Albisinni S, Aoun F, Roumeguère T, Porpiglia F, Tubaro A, De Nunzio C. New treatment strategies for benign prostatic hyperplasia in the frail elderly population: a systematic review.

- Minerva urologica e nefrologica = The Italian journal of urology and nephrology. 2016;69(2):119-132.
86. Castiglione F, Benigni F, Briganti A, Salonia A, Villa L, Nini A, Di Trapani E, Capitanio U, Hedlund P, Montorsi F. Naftopidil for the treatment of benign prostate hyperplasia: a systematic review. *Current medical research and opinion*. 2014;30(4):719-32.
 87. Cizman Z, Isaacson A, Burke C. Short- to Midterm Safety and Efficacy of Prostatic Artery Embolization: A Systematic Review. *Journal of vascular and interventional radiology : JVIR*. 2016;27(10):1487-1493.e1.
 88. Gacci M., Corona G., Monami M., Serni S., Mirone V., Carini M., Maggi M.. Meta-analysis on the use of PDE5 inhibitors for lower urinary tract symptoms due to benign prostatic hyperplasia, according to the recommendations of the cochrane. *European Urology*. 2012;62(2):e36-e38.
 89. Armitage JN, Rashidian A, Cathcart PJ, Emberton M, van der Meulen JH. The thermo-expandable metallic stent for managing benign prostatic hyperplasia: a systematic review. *BJU international*. 2006;98(4):806-10.
 90. Dong Y, Hao L, Shi Z, Wang G, Zhang Z, Han C. Efficacy and safety of tadalafil monotherapy for lower urinary tract symptoms secondary to benign prostatic hyperplasia: a meta-analysis. *Urologia internationalis*. 2013;91(1):10-8.
 91. Jiang H., Zhou Y.. Safety and efficacy of thulium laser prostatectomy versus transurethral resection of prostate for treatment of benign prostate hyperplasia: A meta-analysis. *LUTS: Lower Urinary Tract Symptoms*. 2016;8((Jiang H.; Zhou Y., 497866516@qq.com) Department of Urology Chongqing Dongnan Hospital Chongqing China):165-170.
 92. Chopra S., Garcia C., Chalasani V., Woo H.. Evaluation of laser enucleation techniques in the management of benign prostatic hyperplasia: A systematic review and meta-analysis. *Journal of Urology*. 2015;:e94.
 93. Brasure M, MacDonald R, Dahm P, Olson CM, Nelson VA, Fink HA, Risk M, Rwabasonga B, Wilt TJ. Newer Medications for Lower Urinary Tract Symptoms Attributed to Benign Prostatic Hyperplasia: A Review. *AHRQ Comparative Effectiveness Reviews*. 2016;
 94. Lucca I, Shariat SF, Hofbauer SL, Klatte T. Outcomes of minimally invasive simple prostatectomy for benign prostatic hyperplasia: a systematic review and meta-analysis. *World journal of urology*. 2014;33(4):563-70.
 95. Robert G, de la Taille A, Herrmann T. Bipolar plasma vaporization of the prostate: ready to replace GreenLight? A systematic review of randomized control trials. *World journal of urology*. 2014;33(4):549-54.
 96. Bouza C, López T, Magro A, Navalpotro L, Amate JM. Systematic review and meta-analysis of Transurethral Needle Ablation in symptomatic Benign Prostatic Hyperplasia. *BMC urology*. 2006;6(no pagination):14.
 97. Liu L., Han P., Wei Q., Zheng S., Xu Y., Liu Z., Yuan H.. Urinary tract symptoms secondary to benign prostatic hyperplasia: A systematic review and meta-analysis. *Journal of Urology*. 2011;:e789.
 98. MacDonald R, Tacklind JW, Rutks I, Wilt TJ. Serenoa repens monotherapy for benign prostatic hyperplasia (BPH): an updated Cochrane systematic review. *BJU international*. 2012;109(12):1756-61.
 99. Capitanio U, Salonia A, Briganti A, Montorsi F. Silodosin in the management of lower urinary tract symptoms as a result of benign prostatic hyperplasia: who are the best candidates. *International journal of clinical practice*. 2013;67(6):544-51.
 100. Zhang X, Shen P, He Q, Yin X, Chen Z, Gui H, Shu K, Tang Q, Yang Y, Pan X, Wang J, Chen N, Zeng H. Different lasers in the treatment of benign prostatic hyperplasia: a network meta-analysis. *Scientific reports*. 2016;6:23503.
 101. Boyle P, Robertson C, Manski R, Padley RJ, Roehrborn CG. Meta-analysis of randomized trials of terazosin in the treatment of benign prostatic hyperplasia. *Urology*. 2001;58(5):717-22.
 102. Dai X, Fang X, Ma Y, Xianyu J. Benign Prostatic Hyperplasia and the Risk of Prostate Cancer and Bladder Cancer: A Meta-Analysis of Observational Studies. *Medicine*. 2016;95(18):e3493.

103. Perera M, Roberts MJ, Doi SA, Bolton D. Prostatic Urethral Lift Improves Urinary Symptoms and Flow While Preserving Sexual Function for Men with Benign Prostatic Hyperplasia: A Systematic Review and Meta-analysis. *European urology*. 2014;67(4):704-713.
104. Brunken C, Seitz C, Woo HH. A Systematic Review of Experience of 180W XPS GreenLight Laser Vaporization of the Prostate in 1640 men. *BJU international*. 2014;116(4):531-7.
105. Kang DH, Cho KS, Ham WS, Choi YD, Lee JY. A Systematic Review and Meta-Analysis of Functional Outcomes and Complications Following the Photoselective Vaporization of the Prostate and Monopolar Transurethral Resection of the Prostate. *The world journal of men's health*. 2016;34(2):110-22.
106. Park T, Choi JY. Efficacy and safety of dutasteride for the treatment of symptomatic benign prostatic hyperplasia (BPH): a systematic review and meta-analysis. *World journal of urology*. 2014;32(4):1093-105.
107. Wilt TJ, Ishani A, Stark G, MacDonald R, Lau J, Mulrow C. Saw palmetto extracts for treatment of benign prostatic hyperplasia: a systematic review [corrected] [published erratum appears in *JAMA* 1999 Feb 10; 281(6): 515]. *JAMA : the journal of the American Medical Association*. 1998;280(18):1604-9.
108. Wilt TJ, MacDonald R. Doxazosin in the treatment of benign prostatic hypertrophy: an update. *Clinical interventions in aging*. 2006;1(4):389-401.
109. Schreuder SM, Scholtens AE, Reekers JA, Bipat S. The role of prostatic arterial embolization in patients with benign prostatic hyperplasia: a systematic review. *Cardiovascular and interventional radiology*. 2014;37(5):1198-219.
110. Lebdai S, Delongchamps NB, Sapoval M, Robert G, Amouyal G, Thiounn N, Karsenty G, Ruffion A, de La Taille A, Descazeaud A, Mathieu R. Early results and complications of prostatic arterial embolization for benign prostatic hyperplasia. *World journal of urology*. 2015;34(5):625-32.
111. Wang X.-Y., Zong H.-T., Zhang Y.. Efficacy and safety of prostate artery embolization on lower urinary tract symptoms related to benign prostatic hyperplasia: A systematic review and meta-analysis. *Clinical Interventions in Aging*. 2016;11:1609-1622.
112. Giuliano F, Rouprêt M, Doridot G, de la Taille A. [Effects of phosphodiesterase type 5 inhibitors on lower urinary tract symptoms secondary to benign prostatic hyperplasia]. *Progrès en urologie : journal de l'Association française d'urologie et de la Société française d'urologie*. 2013;23(5):283-95.
113. Li M, Qiu J, Hou Q, Wang D, Huang W, Hu C, Li K, Gao X. Endoscopic Enucleation versus Open Prostatectomy for Treating Large Benign Prostatic Hyperplasia: A Meta-Analysis of Randomized Controlled Trials. *PloS one*. 2015;10(3):e0121265.
114. Kuang M., Vu A., Athreya S.. A meta-analysis of prostatic artery embolization in the treatment of symptomatic benign prostatic hyperplasia. *Journal of Vascular and Interventional Radiology*. 2016;:S53.
115. Dahm P, Brasure M, MacDonald R, Olson CM, Nelson VA, Fink HA, Rwabasonga B, Risk MC, Wilt TJ. Comparative Effectiveness of Newer Medications for Lower Urinary Tract Symptoms Attributed to Benign Prostatic Hyperplasia: A Systematic Review and Meta-analysis. *European urology*. 2016;71(4):570-581.
116. Ting Yin, Zhanbing Qiao, You Li, Dezhi Li, Min Jiang, Chao An, Fen Wang, Minghuan Zuo, Kaiwen Hu, Quanwang Li. Comparisons of the Efficacy and Safety of Finasteride and Dutasteride for Benign Prostatic Hyperplasia: A Network Meta-Analysis. *American Journal of Therapeutics*. 2017;24(5):517-523.
117. Chen H, Tang P, Ou R, Deng X, Xie K. [Holmium laser enucleation versus open prostatectomy for large volume benign prostatic hyperplasia: a meta-analysis of the therapeutic effect and safety]. *南方医科大学学报 (Journal of Southern Medical University)*. 2012;32(6):882-5.
118. Zang YC, Deng XX, Yang DR, Xue BX, Xu LJ, Liu XL, Zhou YB, Shan YX. Photoselective vaporization of the prostate with GreenLight 120-W laser versus transurethral resection of the

- prostate for benign prostatic hyperplasia: a systematic review with meta-analysis of randomized controlled trials. *Lasers in medical science*. 2016;31(2):235-40.
119. Cakiroglu B, Sinanoglu O, Dogan AN. Safety of greenlight photoselective vaporisation of prostate in lower urinary tract symptoms due to benign prostatic hyperplasia in patients using anticoagulants due to cardiovascular comorbidities. *Archivio italiano di urologia, andrologia : organo ufficiale [di] Società italiana di ecografia urologica e nefrologica / Associazione ricerche in urologia*. 2015;87(2):141-3.
 120. Farah S., Winter M., Rajarubendra N., Dyer D., Pham T., Appu S., Spernat D.. PVP & HoLEP versus turp due to benign prostatic hyperplasia: A systematic review and meta-analysis. *Journal of Urology*. 2013;;e808.
 121. Wang X, Wang X, Li S, Meng Z, Liu T, Zhang X. Comparative effectiveness of oral drug therapies for lower urinary tract symptoms due to benign prostatic hyperplasia: a systematic review and network meta-analysis. *PloS one*. 2014;9(9):e107593.
 122. Boyle P, Robertson C, Vaughan ED, Fitzpatrick JM. A meta-analysis of trials of transurethral needle ablation for treating symptomatic benign prostatic hyperplasia. *BJU international*. 2004;94(1):83-8.
 123. Teng J, Zhang D, Li Y, Yin L, Wang K, Cui X, Xu D. Photoselective vaporization with the green light laser vs transurethral resection of the prostate for treating benign prostate hyperplasia: a systematic review and meta-analysis. *BJU international*. 2013;111(2):312-23.
 124. Wilt TJ, MacDonald R, Ishani A. beta-sitosterol for the treatment of benign prostatic hyperplasia: a systematic review. *BJU international*. 1999;83(9):976-83.
 125. Morán E, Budía A, Broseta E, Boronat F. [Phytotherapy in urology. Current scientific evidence of its application in benign prostatic hyperplasia and prostate adenocarcinoma]. *Actas urológicas españolas*. 2013;37(2):114-9.
 126. Cindolo L, Alvarez-Maestro M, Castellucci R, Schips L. Efficacy and safety of dutasteride for the treatment of symptomatic benign prostatic hyperplasia (BPH): a systematic review and meta-analysis. *World journal of urology*. 2014;33(3):441-2.
 127. Park HJ, Won JE, Sorsaburu S, Rivera PD, Lee SW. Urinary Tract Symptoms (LUTS) Secondary to Benign Prostatic Hyperplasia (BPH) and LUTS/BPH with Erectile Dysfunction in Asian Men: A Systematic Review Focusing on Tadalafil. *The world journal of men's health*. 2013;31(3):193-207.
 128. Chung B.H., Yang K.M., Hong S.J.. Meta-analysis of alpha receptor antagonist for benign prostatic hyperplasia from papers that were published in Korea. *Korean Journal of Urology*. 2005;46(3):252-258.
 129. Novara G, Chapple CR, Montorsi F. A pooled analysis of individual patient data from registrational trials of silodosin in the treatment of non-neurogenic male lower urinary tract symptoms (LUTS) suggestive of benign prostatic hyperplasia (BPH). *BJU international*. 2014;114(3):427-33.
 130. Zhang X, Geng J, Zheng J, Peng B, Che J, Liang C. Photoselective vaporization versus transurethral resection of the prostate for benign prostatic hyperplasia: a meta-analysis. *Journal of endourology / Endourological Society*. 2012;26(9):1109-17.
 131. Baazeem A, Elhilali MM. Surgical management of benign prostatic hyperplasia: current evidence. *Nature clinical practice. Urology*. 2008;5(10):540-9.
 132. Boyle P, Robertson C, Lowe F, Roehrborn C. Updated meta-analysis of clinical trials of Serenoa repens extract in the treatment of symptomatic benign prostatic hyperplasia. *BJU international*. 2004;93(6):751-6.
 133. Zou C, Gong D, Fang N, Fan Y. Meta-analysis of metabolic syndrome and benign prostatic hyperplasia in Chinese patients. *World journal of urology*. 2016;34(2):281-9.
 134. Sáez, Iván D, de la Llera, Juan F, Horn, Cristopher D, López, José F, Chacón, Rodrigo A, Figueroa, Pedro A, Vivaldi, Bruno I, Coz, Fernando. Best surgical treatment for very large benign prostatic obstruction. *World*. 2014;3(3):370-375.

135. Richard M Hoffman, Manoj Monga, Sean P Elliott, Roderick MacDonald, Jens Langsjoen, James Tacklind, Timothy J Wilt. Microwave thermotherapy for benign prostatic hyperplasia. *Cochrane Database of Systematic Reviews*. 2012;9(9):CD004135.
136. Wu YJ, Dong Q, Liu LR, Wei Q. A meta-analysis of efficacy and safety of the new α 1A-adrenoceptor-selective antagonist silodosin for treating lower urinary tract symptoms associated with BPH. *Prostate cancer and prostatic diseases*. 2013;16(1):79-84.
137. Kyriazis I, Świniarski PP, Jutzi S, Wolters M, Netsch C, Burchardt M, Liatsikos E, Xia S, Bach T, Gross AJ, Herrmann TR. Transurethral anatomical enucleation of the prostate with Tm:YAG support (ThuLEP): review of the literature on a novel surgical approach in the management of benign prostatic enlargement. *World journal of urology*. 2015;33(4):525-30.
138. Russo G.I., Favilla V., Castelli T., Privitera S., Cimino S., Morgia G.. Impact of combination therapy 5-ARI + alpha-blockers on erectile dysfunction and alteration of libido in patients with LUTS/BPH: A systematic review with meta-analysis. *Journal of Urology*. 2016;:e465.
139. Isaacson A., Cizman Z., Burke C.T.. Short-to mid-term safety and efficacy of prostatic artery embolization: A systematic review. *Journal of Vascular and Interventional Radiology*. 2015;26(2):S136.
140. Liu L, Zheng S, Han P, Wei Q. Phosphodiesterase-5 inhibitors for lower urinary tract symptoms secondary to benign prostatic hyperplasia: a systematic review and meta-analysis. *Urology*. 2011;77(1):123-9.
141. Alpajaro S.I., Lim E.U.. Intraprostatic botulinum toxin injection for benign prostatic hyperplasia: A meta-analysis of prospective studies. *BJU International*. 2014;:10.
142. Teoh JY, Chiu PK, Yee CH, Wong HM, Chan CK, Chan ES, Hou SS, Ng CF. Prostatic artery embolization in treating benign prostatic hyperplasia: a systematic review. *International urology and nephrology*. 2016;49(2):197-203.
143. MacDonald R, Wilt TJ. Alfuzosin for treatment of lower urinary tract symptoms compatible with benign prostatic hyperplasia: a systematic review of efficacy and adverse effects. *Urology*. 2005;66(4):780-8.
144. Thomson A. Dutasteride: an evidence-based review of its clinical impact in the treatment of benign prostatic hyperplasia. *Core evidence*. 2005;1(2):143-56.
145. Zhang W, Ma L, Bauer BA, Liu Z, Lu Y. Acupuncture for benign prostatic hyperplasia: A systematic review and meta-analysis. *PloS one*. 2017;12(4):e0174586.
146. Corona G., Santi D., Maseroli E., Gacci M., Di Cuiro M., Maggi M.. Sexual dysfunction in subjects treated with inhibitors of 5 α -reductase for benign prostatic hyperplasia: A comprehensive review and meta-analysis. *Andrology*. 2016;:85-86.
147. Guang-Jun D, Feng-Bin G, Xun-Bo J. α 1-Blockers in the management of acute urinary retention secondary to benign prostatic hyperplasia: a systematic review and meta-analysis. *Irish journal of medical science*. 2014;184(1):23-30.
148. Ren J, Lai S, Jiang Z, Xu X, Diao T, Thiruchelvam N, Zhang G. A Systematic Review and Meta-Analysis of the Effects on Dutasteride Treatment for Reducing Surgical Blood Loss during Transurethral Resection of the Prostate. *Urologia internationalis*. 2016;98(4):456-465.
149. Pyo JS, Cho WJ. Systematic review and meta-analysis of prostatic artery embolisation for lower urinary tract symptoms related to benign prostatic hyperplasia. *Clinical radiology*. 2016;72(1):16-22.
150. Frieben RW, Lin HC, Hinh PP, Berardinelli F, Canfield SE, Wang R. The impact of minimally invasive surgeries for the treatment of symptomatic benign prostatic hyperplasia on male sexual function: a systematic review. *Asian journal of andrology*. 2010;12(4):500-8.
151. Kahokehr A, Vather R, Nixon A, Hill AG. Non-steroidal anti-inflammatory drugs for lower urinary tract symptoms in benign prostatic hyperplasia: systematic review and meta-analysis of randomized controlled trials. *BJU international*. 2013;111(2):304-11.
152. Kim M, Jeong CW, Oh SJ. Effect of preoperative urodynamic detrusor underactivity on transurethral surgery for benign prostatic hyperplasia: a systematic review and meta-analysis. *The Journal of urology*. 2017;

153. Miller MS. Role of phosphodiesterase type 5 inhibitors for lower urinary tract symptoms. *The Annals of pharmacotherapy*. 2013;47(2):278-83.
154. Gacci M., Corona G., Salvi M., Vignozzi L., McVary K.T., Kaplan S.A., Roehrborn C.G., Serni S., Mirone V., Carini M., Maggi M.. A systematic review and meta-analysis of the use of phosphodiesterase type 5 inhibitors (PDE5-Is) for lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH). *Journal of Urology*. 2012;;e506-e507.
155. Tang Y, Li J, Pu C, Bai Y, Yuan H, Wei Q, Han P. Bipolar transurethral resection versus monopolar transurethral resection for benign prostatic hypertrophy: a systematic review and meta-analysis. *Journal of endourology / Endourological Society*. 2014;28(9):1107-14.
156. Ding H, Du W, Lu ZP, Zhai ZX, Wang HZ, Wang ZP. Photoselective green-light laser vaporisation vs. TURP for BPH: meta-analysis. *Asian journal of andrology*. 2012;14(5):720-5.
157. Yin L, Teng J, Huang CJ, Zhang X, Xu D. Holmium laser enucleation of the prostate versus transurethral resection of the prostate: a systematic review and meta-analysis of randomized controlled trials. *Journal of endourology / Endourological Society*. 2013;27(5):604-11.
158. Armitage JN, Cathcart PJ, Rashidian A, De Nigris E, Emberton M, van der Meulen JH. Epithelializing stent for benign prostatic hyperplasia: a systematic review of the literature. *The Journal of urology*. 2007;177(5):1619-24.
159. Tacklind J, Fink HA, Macdonald R, Rutks I, Wilt TJ. Finasteride for benign prostatic hyperplasia. *Cochrane database of systematic reviews (Online)*. 2010;(10):CD006015.
160. Eredics K, Madersbacher S, Schauer I. A Relevant Midterm (12 Months) Placebo Effect on Lower Urinary Tract Symptoms and Maximum Flow Rate in Male Lower Urinary Tract Symptom and Benign Prostatic Hyperplasia-A Meta-analysis. *Urology*. 2017;106:160-166.
161. Poulakis V, Dahm P, Witzsch U, Sutton AJ, Becht E. Transurethral electrovaporization vs transurethral resection for symptomatic prostatic obstruction: a meta-analysis. *BJU international*. 2004;94(1):89-95.
162. Ma CH, Lin WL, Lui SL, Cai XY, Wong VT, Ziea E, Zhang ZJ. Efficacy and safety of Chinese herbal medicine for benign prostatic hyperplasia: systematic review of randomized controlled trials. *Asian journal of andrology*. 2013;15(4):471-82.
163. Xu H, Fu S, Chen Y, Chen Q, Gu M, Wang Z. Smoking habits and benign prostatic hyperplasia: A systematic review and meta-analysis of observational studies. *Medicine*. 2016;95(32):e4565.
164. Perera M., Roberts M.J., Doi S.A.R., Bolton D.. Prostatic urethral lift improves urinary symptoms and flow while preserving sexual function for men with benign prostatic hyperplasia: A systematic review and meta-analysis. *BJU International*. 2015;;53.
165. Men C., Wang M., Aiyireti M., Cui Y.. The efficacy and safety of *Urtica dioica* in treating benign prostatic hyperplasia: A systematic review and meta-analysis. *African Journal of Traditional, Complementary and Alternative Medicines*. 2016;13(2):143-150.
166. Lee SW, Choi JB, Lee KS, Kim TH, Son H, Jung TY, Oh SJ, Jeong HJ, Bae JH, Lee YS, Kim JC. Transurethral procedures for lower urinary tract symptoms resulting from benign prostatic enlargement: a quality and meta-analysis. *International neurourology journal*. 2013;17(2):59-66.
167. Shim SR, Cho YJ, Shin IS, Kim JH. Efficacy and safety of botulinum toxin injection for benign prostatic hyperplasia: a systematic review and meta-analysis. *International urology and nephrology*. 2015;48(1):19-30.
168. Herrmann TR, Georgiou A, Bach T, Gross AJ, Oelke M. Laser treatments of the prostate vs TURP/ open prostatectomy: systematic review of urodynamic data. *Minerva urologica e nefrologica = The Italian journal of urology and nephrology*. 2009;61(3):309-24.
169. Wilt TJ, Ishani A, Rutks I, MacDonald R. Phytotherapy for benign prostatic hyperplasia. *Public health nutrition*. 2000;3(4A):459-72.
170. Mayer EK, Kroeze SG, Chopra S, Bottle A, Patel A. Examining the 'gold standard': a comparative critical analysis of three consecutive decades of monopolar transurethral resection of the prostate (TURP) outcomes. *BJU international*. 2012;110(11):1595-601.

171. Kim HJ, Sun HY, Choi H, Park JY, Bae JH, Doo SW, Yang WJ, Song YS, Ko YM, Kim JH. Efficacy and Safety of Initial Combination Treatment of an Alpha Blocker with an Anticholinergic Medication in Benign Prostatic Hyperplasia Patients with Lower Urinary Tract Symptoms: Updated Meta-Analysis. *PloS one*. 2017;12(1):e0169248.
172. Gravas S, Bachmann A, Reich O, Roehrborn CG, Gilling PJ, De La Rosette J. Critical review of lasers in benign prostatic hyperplasia (BPH). *BJU international*. 2011;107(7):1030-43.
173. Uflacker A., Haskal Z.J., Bilhim T., Patrie J., Huber T., Pisco J.M.. Meta-Analysis of Prostatic Artery Embolization for Benign Prostatic Hyperplasia. *Journal of Vascular and Interventional Radiology*. 2016;27(11):1686-1697.e8.
174. Cui Y, Zong H, Zhang Y. The efficacy and safety of silodosin in treating BPH: a systematic review and meta-analysis. *International urology and nephrology*. 2012;44(6):1601-9.
175. Ren RM, Kou M, Lan XX. Efficacy and safety of tamsulosin for the treatment of benign prostatic hyperplasia: a meta analysis. *Chinese medical journal*. 2010;123(2):234-8.
176. Presicce F, DE Nunzio C, Gacci M, Sosnowsky R, Lombardo R, Porpiglia F, Tubaro A. The influence of luts medical treatment on bph surgery: do we operate too late?. *Minerva urologica e nefrologica = The Italian journal of urology and nephrology*. 2016;69(3):242-252.
177. Kuang M, Vu A, Athreya S. A Systematic Review of Prostatic Artery Embolization in the Treatment of Symptomatic Benign Prostatic Hyperplasia. *Cardiovascular and interventional radiology*. 2016;40(5):1-9.
178. Gacci M, Corona G, Salvi M, Vignozzi L, McVary KT, Kaplan SA, Roehrborn CG, Serni S, Mirone V, Carini M, Maggi M. A systematic review and meta-analysis on the use of phosphodiesterase 5 inhibitors alone or in combination with α -blockers for lower urinary tract symptoms due to benign prostatic hyperplasia. *European urology*. 2012;61(5):994-1003.
179. Kaplan S.A.. Updated meta-analysis of clinical trials of serenoa repens extract in the treatment of symptomatic benign prostatic hyperplasia. *Journal of Urology*. 2005;173(2):516.
180. Qian X, Liu H, Xu D, Xu L, Huang F, He W, Qi J, Zhu Y, Xu D. Functional outcomes and complications following B-TURP versus HoLEP for the treatment of benign prostatic hyperplasia: a review of the literature and Meta-analysis. *The aging male : the official journal of the International Society for the Study of the Aging Male*. 2017;20(3):1-8.
181. James Tacklind, Roderick MacDonald, Indy Rutks, Judith U Stanke, Timothy J Wilt. Serenoa repens for benign prostatic hyperplasia. *Cochrane Database of Systematic Reviews*. 2012;12(12):CD001423.
182. Zong HT, Peng XX, Yang CC, Zhang Y. [Impacts of different transurethral prostatic resection procedures on male sexual function: meta-analysis of randomized controlled trials]. *Zhonghua nan ke xue = National journal of andrology*. 2011;17(11):1014-8.
183. Boyle P, Gould AL, Roehrborn CG. Prostate volume predicts outcome of treatment of benign prostatic hyperplasia with finasteride: meta-analysis of randomized clinical trials. *Urology*. 1996;48(3):398-405.
184. Onega T. CAT clinic. Saw palmetto for BPH: a review of a meta-analysis. *JAAPA: Journal of the American Academy of Physician Assistants (Haymarket Media, Inc.)*. 2002;15(5):59-64.
185. Minciullo PL, Inferrera A, Navarra M, Calapai G, Magno C, Gangemi S. Oxidative Stress in Benign Prostatic Hyperplasia: A Systematic Review. *Urologia internationalis*. 2014;94((Minciullo P.L.) Operative Unit of Allergy and Clinical Immunology, Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy):249-54.
186. Corona G., Gacci M., Salvi M., Vignozzi L., McVary K.T., Kaplan S.A., Roehrborn C.G., Serni S., Mirone V., Carini M., Maggi M.. A systematic meta-analysis on the use of phosphodiesterase 5 inhibitors alone or in combination with alpha-blockers for lower urinary tract symptoms due to benign prostatic hyperplasia. *Journal of Sexual Medicine*. 2013;:253.
187. Chopra S., Garcia C., Chalasani V., Woo H.. Evaluation of laser enucleation techniques in the management of benign prostatic hyperplasia: A systematic review and meta-analysis. *BJU International*. 2015;:4-5.

188. Ishani A, MacDonald R, Nelson D, Rutks I, Wilt TJ. Pygeum africanum for the treatment of patients with benign prostatic hyperplasia: a systematic review and quantitative meta-analysis. *The American journal of medicine*. 2000;109(8):654-64.
189. Zeng XT, Yao QS, Weng H, Li S, Huang JY, Wang XH. Meta-analysis of vitamin D receptor gene polymorphisms and benign prostatic hyperplasia risk. *Molecular biology reports*. 2014;41(10):6713-7.
190. Novara G., Giannarini G., Alcaraz A., Cozar-Olmo J.-M., Descazeaud A., Montorsi F., Ficarra V.. Efficacy and Safety of Hexanic Lipidosterolic Extract of *Serenoa repens* (Permixon) in the Treatment of Lower Urinary Tract Symptoms Due to Benign Prostatic Hyperplasia: Systematic Review and Meta-analysis of Randomized Controlled Trials. *European Urology Focus*. 2016;2(5):553-561.
191. Favilla V, Russo GI, Privitera S, Castelli T, Giardina R, Calogero AE, Condorelli RA, Vignera S, Cimino S, Morgia G. Impact of combination therapy 5-alpha reductase inhibitors (5-ARI) plus alpha-blockers (AB) on erectile dysfunction and decrease of libido in patients with LUTS/BPH: a systematic review with meta-analysis. *The aging male : the official journal of the International Society for the Study of the Aging Male*. 2016;19(3):1-7.
192. Ilic D, Misso M. Lycopene for the prevention and treatment of benign prostatic hyperplasia and prostate cancer: a systematic review. *Maturitas*. 2012;72(4):269-76.
193. DeCao H, Wang J, Huang Y, LiangLiu R, JunLei H, Gao L, Tang Z, YingHu C, Li X, JiuYuan H, Dong Q, Wei Q. Comparison between thulium laser resection of prostate and transurethral plasmakinetic resection of prostate or transurethral resection of prostate. *Scientific reports*. 2015;5:14542.
194. Torre A, Giupponi G, Duffy D, Conca A, Cai T, Scardigli A. Sexual Dysfunction Related to Drugs: a Critical Review. Part V: α -Blocker and 5-ARI Drugs. *Pharmacopsychiatry*. 2015;49(1):3-13.
195. Yin T., Qiao Z., Li Y., Li D., Jiang M., An C., Wang F., Zuo M., Hu K., Li Q.. Comparisons of the Efficacy and Safety of Finasteride and Dutasteride for Benign Prostatic Hyperplasia: A Network Meta-Analysis. *American Journal of Therapeutics*. 2015;24(5):e517-e523.
196. Li S, Zeng XT, Ruan XL, Weng H, Liu TZ, Wang X, Zhang C, Meng Z, Wang XH. Holmium laser enucleation versus transurethral resection in patients with benign prostate hyperplasia: an updated systematic review with meta-analysis and trial sequential analysis. *PLoS one*. 2014;9(7):e101615.
197. Jun JEJ, Kinkade A, Tung ACH, Tejani AM. 5 α -Reductase Inhibitors for Treatment of Benign Prostatic Hyperplasia: A Systematic Review and Meta-Analysis. *The Canadian journal of hospital pharmacy*. 2017;70(2):113-119.
198. Yan H, Zong H, Cui Y, Li N, Zhang Y. The efficacy of PDE5 inhibitors alone or in combination with alpha-blockers for the treatment of erectile dysfunction and lower urinary tract symptoms due to benign prostatic hyperplasia: a systematic review and meta-analysis. *The journal of sexual medicine*. 2014;11(6):1539-45.
199. Descazeaud A, Robert G, Delongchamps NB, Cornu JN, Saussine C, Haillot O, Devonec M, Fourmarier M, Ballereau C, Lukacs B, Dumonceau O, Azzouzi AR, de la Taille A, Comité des troubles mictionnels de l'homme de l'Association française d'urologie. [Initial assessment and follow-up of benign prostatic hyperplasia: systematic review of the literature by the LUTS committee of the French Urological Association]. *Progrès en urologie : journal de l'Association française d'urologie et de la Société française d'urologie*. 2012;22(1):1-6.
200. Tang K, Xu Z, Xia D, Ma X, Guo X, Guan W, Hu Z, Zhang X, Ye Z, Xu H. Early outcomes of thulium laser versus transurethral resection of the prostate for managing benign prostatic hyperplasia: a systematic review and meta-analysis of comparative studies. *Journal of endourology / Endourological Society*. 2013;28(1):65-72.