



PTNS to TENS and beyond: Rethinking the treatment pathway

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AIM: Exploring a Hybrid Approach to Neuromodulation in the Management of Overactive Bladder

Where initial management strategies prove inadequate, NICE guideline recommends percutaneous tibial nerve stimulation (PTNS) as a second-line treatment, typically involving a course of 12 weekly sessions. This treatment is often reserved for patients who are not suitable for bladder instillations or more aggressive pharmacological intervention. During the COVID-19 pandemic, the Urogynaecology team at Chelsea and Westminster Hospital introduced an innovative 12-week hybrid neuromodulation program combining PTNS and transcutaneous tibial nerve stimulation (TTNS). This approach included 6 sessions of PTNS followed by 6 sessions of TTNS, with continued TTNS maintenance therapy. This pathway has been audited to assess treatment benefit and modifications to the current pathway have been suggested.

Method

Population

- Patients with symptoms of overactive bladder +/- urge incontinence +/- bladder pain in Chelsea Westminster Urogynaecology Clinic between June 2021 – December 2024

Data Collection

- Review of patient medical notes, questionnaires of ICIQ scores completed at the beginning and end of treatment, bladder diaries, demographic data
- patient survey on TENS treatment

Analysis

- Paired T-tests were used to compare ICIQ symptom scores post PTNS treatment
- Subjective data used to review response to TTNS

Outcome

- Data presented to the Chelsea and Westminster urogynaecology MDT
- Adjustment to the treatment pathway for PTNS/TTNS for the treatment of overactive bladder

Results

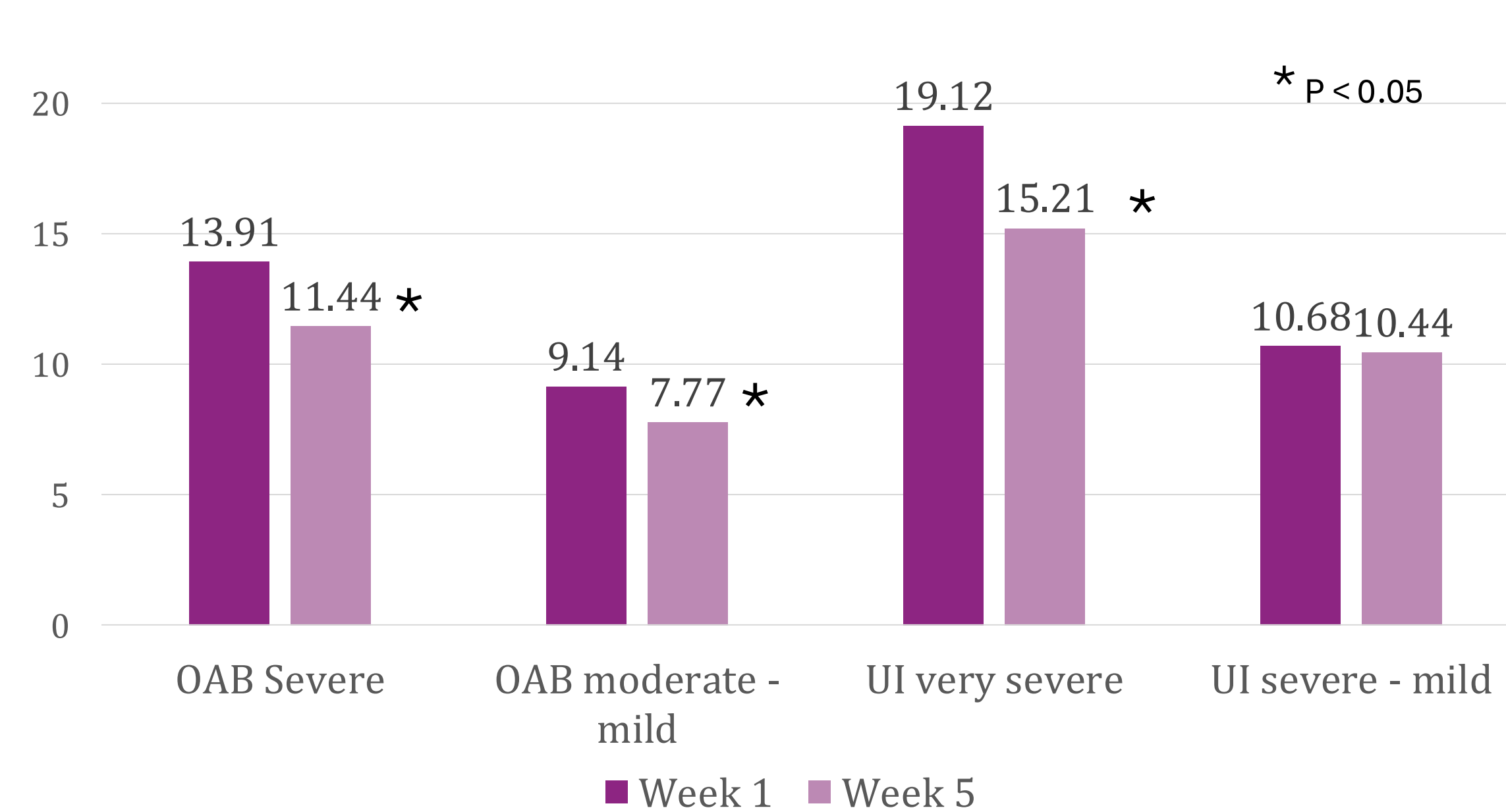
PTNS response

Data was collected from 67 patients who completed ICIQ scores for urinary incontinence (UI) and overactive bladder (OAB) at week 1 and week 5 of receiving PTNS.

	Week 1	Week 5	Paired t test
OAB ICIQ score (0-15)	11.42	9.52	p = 0.0001
UI ICIQ score (0-21)	14.88	12.76	p = 0.0001

A significant improvement in both scores using PTNS was achieved

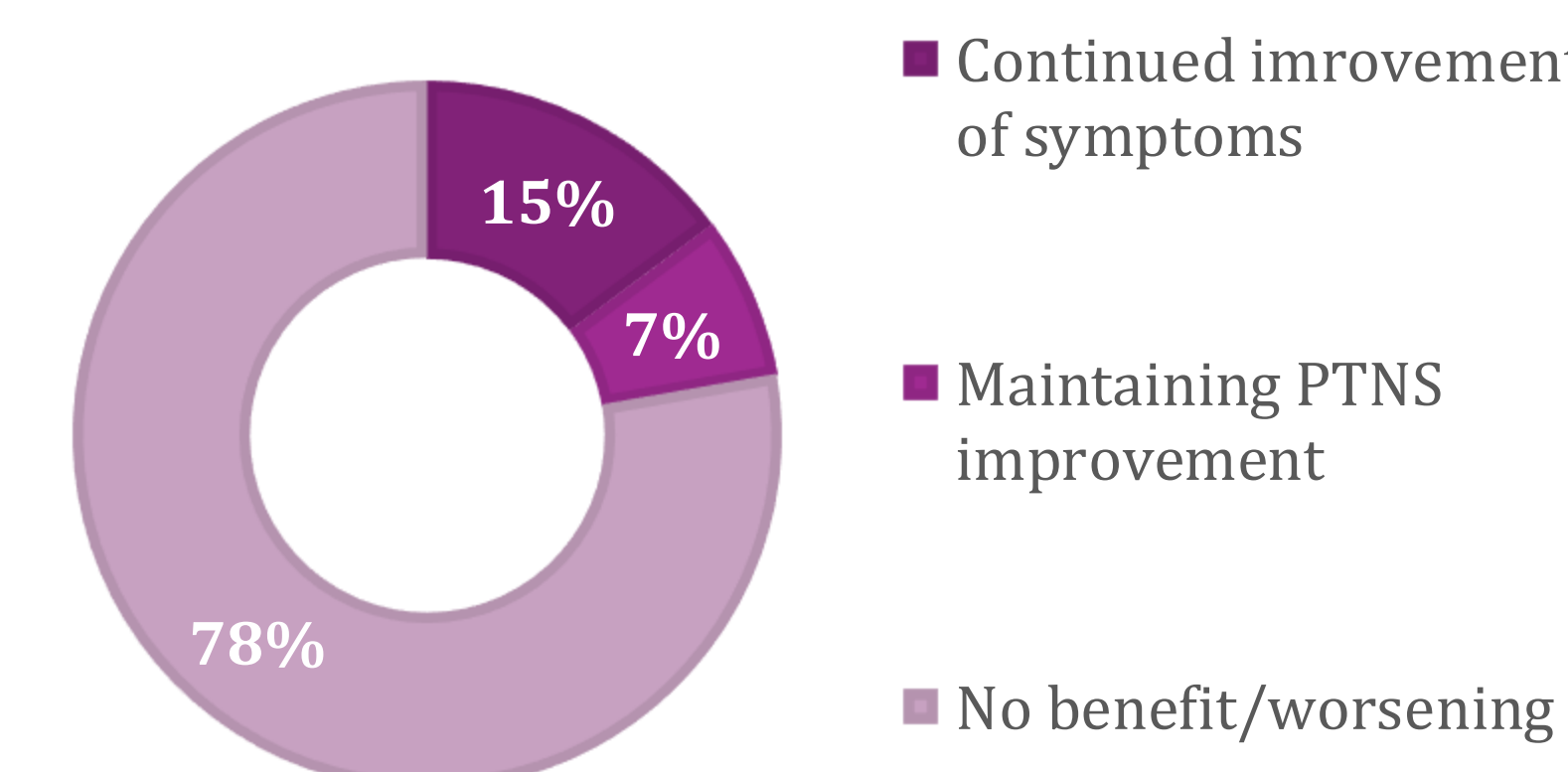
PTNS efficacy reviewed in subgroups dependent on severity of symptoms (based on ICIQ scores):



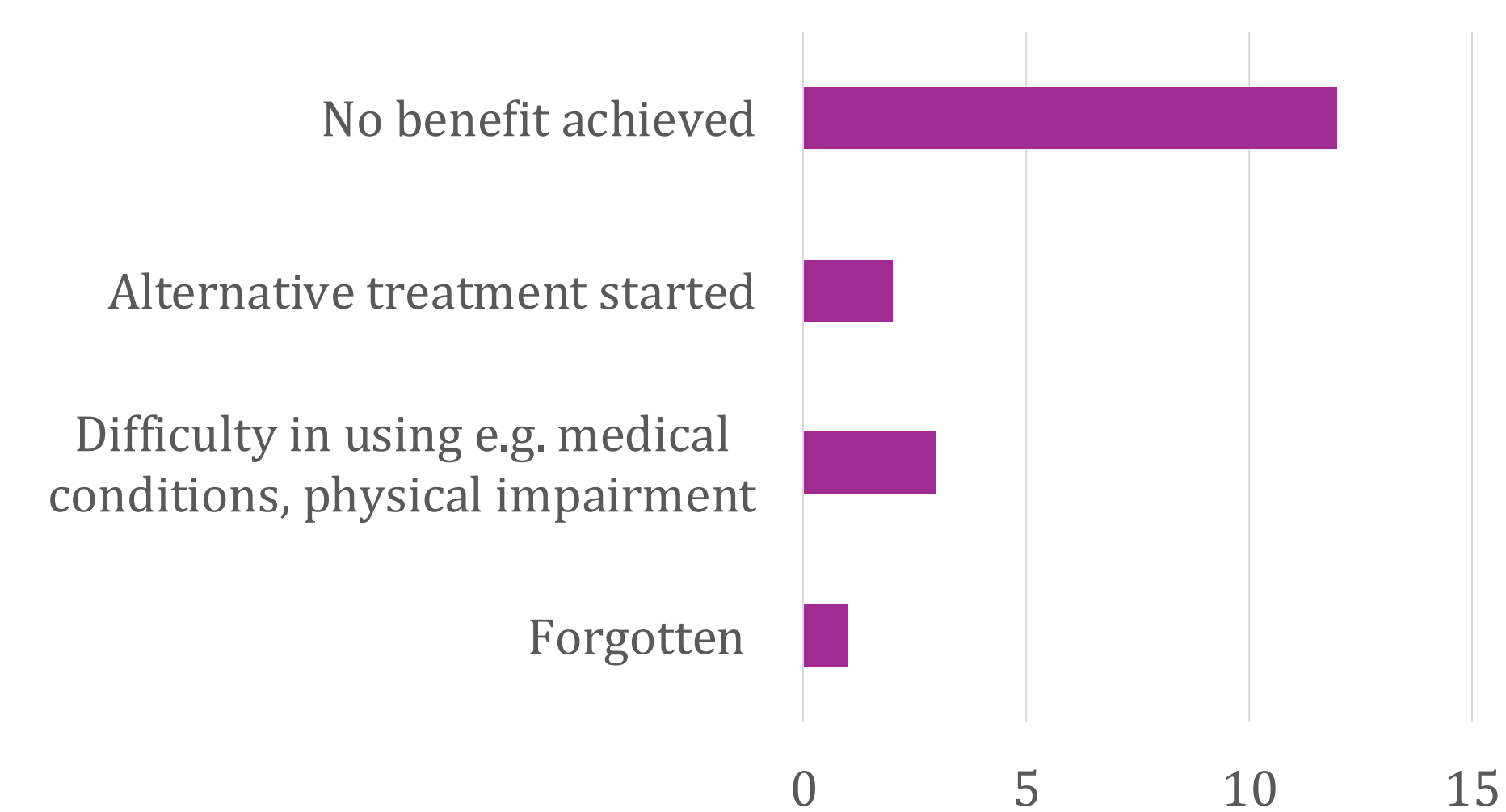
Patients with ICIQ-UI scores >17, indicating severe leakage (n=34), had the greatest decrease in UI score, from a mean baseline of 19.21 to 15.21 (p<0.001).

TTNS response

54 patients went on to use a TENS machine after completing PTNS treatment cycle. 31 were available for follow up, results as demonstrated:



Reasons for discontinuing TENS:



The most common reason for discontinuing TTNS was due to no reported benefit in symptoms. Patients expressed frustration at worsening symptoms after seeing good response to PTNS.

OUTCOME: adjustment to the treatment pathway

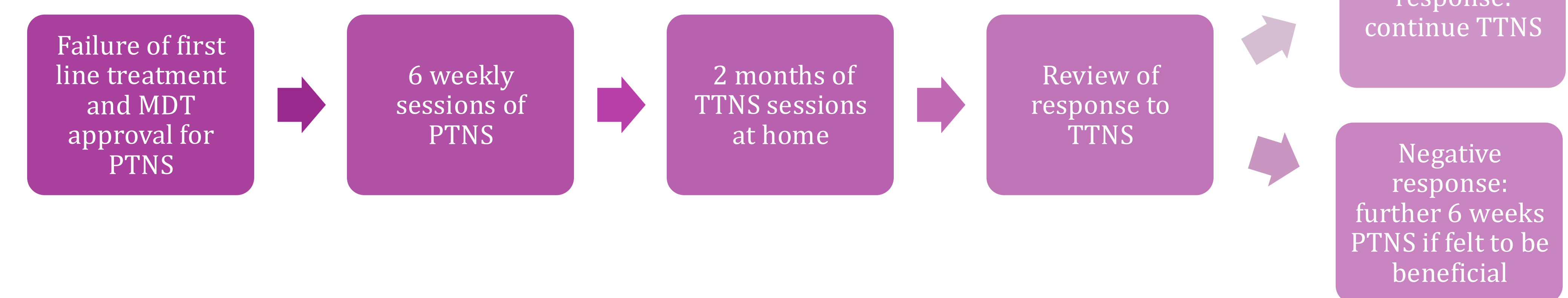
This audit presented the MDT with valuable insight into the successes and setbacks of the hybrid PTNS/TTNS pathway in treating patients with symptoms of overactive bladder. The advantages of TTNS therapy cannot be dismissed; home based therapy, reduced requirement for attendance of clinics, non-invasive, non-pharmacological, almost universally acceptable to patients, no limit on continuation of treatment. It was therefore considered a superior treatment to continuing PTNS in those patients who derived symptomatic improvement from TTNS.

Due to the improvement in symptoms following the use of ongoing TTNS therapy in a small but significant cohort of patients, the urogynecology department will continue to provide a hybrid PTNS/TTNS therapy. However, an adjustment to the pathway will identify those with deteriorating ICIQ scored on TTNS. These patients will be offered a further round of PTNS.

Previous Hybrid Pathway



Improved Hybrid Pathway



The new treatment pathway provides a structure which will recognise those who can benefit from treatment with TTNS (a preferable treatment modality when there is a positive response) and will also identify those who have not responded well to TTNS and offer repeated cycles of PTNS to further improve symptoms.

Conclusion

- The clinic based PTNS treatment protocol at CWH provides effective treatment for patients, reducing symptoms scores significantly in both urinary incontinence and overactive bladder
- TTNS is effective in a small cohort of patients; however medium- to long-term efficacy was not proven in this majority of this cohort.
- The urogynaecology MDT will implement a change future practice at CWH to follow up patients using a TENS machine and offer a repeat cycle of PTNS if their symptoms have deteriorated.**
- Re-audit of the new pathway is essential to review whether there is a positive response to improving patient symptoms of overactive bladder
- This audit also highlights a requirement for further studies to identify the patient cohorts who may respond favourably to specific TENS therapy, this could reduce patient burden in PTNS clinics in the future.