COST EFFECTIVENESS STUDY HIGHLIGHTS BENEFITS OF NEW ‘4D’ TECHNIQUE FOR LOW DOSE RATE BRACHYTHERAPY PROSTATE CANCER TREATMENT

4D LDR Brachytherapy Monotherapy Reduces Procedure Cost by 40% Compared to Traditional ‘Two-Stage’ Implant Technique

The findings of a multi-clinic study conducted by BXTAccelyon, the leading Low Dose Rate Brachytherapy (LDR-B) partner to hospitals and clinics worldwide, indicates that a new monotherapy implant technique – ‘4D Brachytherapy™’ – offers cost benefits of over 40% in comparison to traditional two-stage approaches.

The cost-effectiveness study, conducted as an internal review of hospital data from five prostate cancer treatment centres across the UK and Ireland, compared NHS costs from the NIHR commissioned Ramsay report with costs from the UK’s leading 4D brachytherapy centre, the Royal Surrey County Hospital. The analysis included both procedural elements and resource use, and covered pre-treatment consultation; treatment planning; treatment delivery; post-implant dosimetry and implant quality assessment.

On average, the total cost of a traditional two-stage LDR-B treatment was £3,595.06. The equivalent total cost of an average 4D implant procedure was £2,167.24.

Saheed Rashid, Managing Director, BXTAccelyon, comments: “This study represents a significant result for LDR-B as a treatment option. Previous studies have indicated that LDR-B is almost equivalent to active surveillance in terms of cost of treatment, and is the most cost-effective curative treatment for patients with low-risk prostate cancer. The new 4D data makes an even greater case for clinicians to consider.”

A one-stage, real-time implant technique, 4D Brachytherapy uses a simple clinic-based ultrasound scan to calculate the number of stranded and loose seeds required for the procedure. The replacement of the traditional in-clinic volume study procedure undertaken in the operating theatre, often under GA, with an out-patient procedure reduces operating theatre time and provides a better patient experience.

In addition, data from the Royal Surrey County Hospital, where the treatment was pioneered, comparing the classic two-step LDR-B technique with 4D Brachytherapy revealed an improvement in potency at 24 months from 65% to 83% of patients. The 4D process enables the delivery of both tighter dose delivery and optimised doses of radiotherapy, further improving implant quality, which is expected to lead to improvements on the current 95% ten-year disease-free control.

Royal Surrey has conducted a retrospective comparison between 690 two-stage patients and 1,031 4D patients – a powerful clinical data collection comparing dosimetry and toxicity levels in PCa patients. Dr Robert Laing, Consultant Clinical Oncologist at Royal Surrey, comments “It is important when deciding optimum treatment for men with prostate cancer that the financial costs and physical costs (such as time off work) are considered, especially when there are no survival differences between the established treatments. We have seen an improvement in dosimetry and clinical outcomes with the latest implant techniques coupled with an improvement in the brachytherapy team’s productivity.”

Stephen Langley, Professor of Urology and Clinical Director at Royal Surrey, adds: “As a treatment option brachytherapy has significantly evolved over the past two decades and, with this latest implant technique, now provides the ability to give a very effective, targeted prescription of radiotherapy, while offering tangible resource and cost savings. The potential for a significant number of additional patients to be treated within the same theatre time and budget is something clinical leaders should consider in weighing up all potential treatments for prostate cancer patients, especially as all the recognised treatments have the same chance of curative outcomes.”

Contact: www.bxt-accelyon.com/4d-brachytherapy

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Ablative therapy for people with localised prostate cancer: a systematic review and economic evaluation
Craig R Ramsay, Temitope E Adewuyi, Joanne Gray, Jenni Hislop, Mark DF Shirley, Shalmin Jayakody, Graeme MacLennan, Cynthia Fraser, Sara MacLennan, Miriam Brazzeil, James NDow, Robert Pickard, Claire Robertson, Kieran Roithnie, Stephen F Rushton, Luke Vale and Thomas B Lam


Royal Surrey County Hospital: 4D Brachytherapy, a novel real-time prostate brachytherapy technique using stranded and loose seeds, Stephen E. M. Langley and Robert W. Laing, Departments of Urology and Oncology, St Luke’s Cancer Centre, Royal Surrey County Hospital, Guildford, UK.