

PROVEN SUPERIOR CLINICAL OUTCOMES WITH TOMOHELICAL™ COMPARED TO RAPIDARC FOR HEAD AND NECK CANCER

A prospective, multi-institutional clinical study supported by the French National Cancer Institute (INCa: Institut National du Cancer) demonstrated that patients with head and neck cancer treated with intensity-modulated radiation therapy (IMRT) showed a significantly better local control rate, cancer-specific survival rate and post-treatment salivary function when treated with Helical TomoTherapy (Accuray's TomoHelical™) compared to volumetric modulated arc therapy (Varian's RapidArc).

The study, the first to prospectively compare clinical outcomes across radiation therapy platforms, was published online on June 26, 2017 in the peer-reviewed *International Journal of Radiation Oncology – Biology – Physics*. It was part of a voluntary evaluation of IMRT platforms by French centers following a rigorous methodology.

Study Title	Protocol Advanced Radiotherapy ORL (ART-ORL) https://clinicaltrials.gov/ct2/show/NCT02024035																
Purpose	Prospectively evaluate the clinical and economic aspects of TomoHelical and RapidArc for patients with head and neck cancer																
Design	Prospective, comparative, multi-institutional; 14 French centers																
Number of Patients Analyzed	166 patients; 74 treated with TomoHelical and 92 with RapidArc																
Dose Prescription	High, medium, and low-risk volumes received 70 Gy, 63 Gy, and 56 Gy respectively in 35 fractions delivered 5 days a week over a 7-week period																
Time Period	Treated between February 2010 and February 2012																
Follow-up	Assessed 18 months after treatment																
Efficacy & Toxicity*	<table border="1"> <caption>Comparison of Clinical Outcomes</caption> <thead> <tr> <th>Metric</th> <th>Helical TomoTherapy (n = 74)</th> <th>Varian RapidArc (n = 92)</th> <th>p-value</th> </tr> </thead> <tbody> <tr> <td>Loco-regional Control</td> <td>83.3%</td> <td>72.7%</td> <td>0.025</td> </tr> <tr> <td>Cancer Specific Survival</td> <td>97.2%</td> <td>85.5%</td> <td>0.014</td> </tr> <tr> <td>Acute Toxicity (G3+) Salivary Disorders</td> <td>7.5%</td> <td>20.4%</td> <td>0.012</td> </tr> </tbody> </table>	Metric	Helical TomoTherapy (n = 74)	Varian RapidArc (n = 92)	p-value	Loco-regional Control	83.3%	72.7%	0.025	Cancer Specific Survival	97.2%	85.5%	0.014	Acute Toxicity (G3+) Salivary Disorders	7.5%	20.4%	0.012
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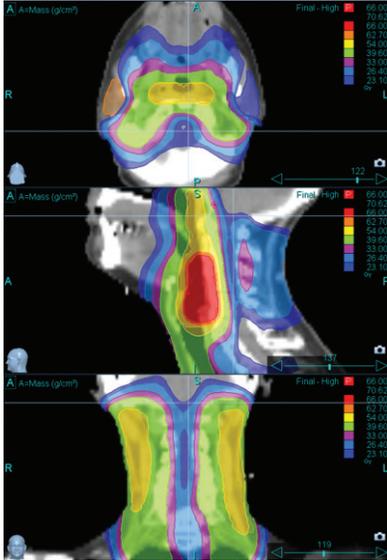
* Weighted analysis (Inverse probability of treatment weighting)

Randomization was not possible as participating centers offered only one of the delivery techniques. Inverse probability of treatment weighting (IPTW) using the propensity score analysis was undertaken to adjust for potential bias due to non-randomization. The propensity score is the conditional probability of a patient being treated with TomoHelical given other observed characteristics. Even before the adjustment the TomoHelical results were better than RapidArc as measured by local control, cancer-specific survival and acute salivary function, even though significant differences in several pre-treatment characteristics may have placed the TomoHelical group at a disadvantage.

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TOMOTHERAPY® SYSTEM

The TomoTherapy® System was designed specifically for image-guided radiotherapy and IMRT delivery. Its unique helical delivery mode (TomoHelical™) provides continuous delivery of intensity modulated radiation beamlets from 360 degrees around the patient. It offers optimal dose sculpting capability enabling highly conformal and homogeneous dose distribution.



Effective

The study suggests that TomoHelical contributes to better cancer-specific survival rate (97.2% vs 85.5%) and local control rate (83.3% vs 72.7%) compared to RapidArc. Further analysis suggests an even greater benefit in the local control of larger tumors and those that have spread to more lymph nodes.

Precise

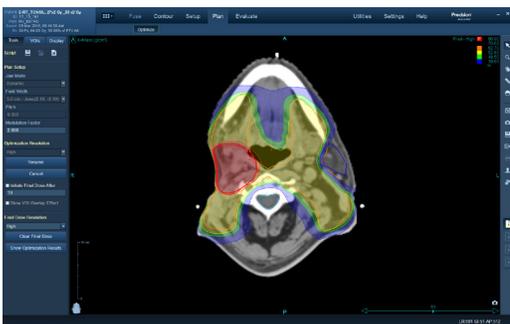
The study also suggests that reduced dose outside the tumor carved by TomoHelical leads to better acute salivary function than with RapidArc. Mouth dryness was worse and salivary disorders were more frequent in the RapidArc patient group (20.4% vs 7.5%). Less toxic treatments may lead to lower overall healthcare provider and system costs when treating patients with head and neck cancers.

Versatile

TomoHelical enables the treatment of the entire spectrum of head and neck cancers, regardless of shape or size or nodal involvement. The results from this study are expected to also apply to other clinical indications benefiting from highly conformal and homogeneous dose distribution.

RADIXACT® SYSTEM

This landmark study demonstrates that the technique used to deliver IMRT can have a major impact on patient outcomes. The better local control, cancer-specific survival, and acute salivary function rates reinforce the TomoTherapy System's superiority in managing head and neck tumors. The same results are expected with the Radixact® System, the next-generation TomoTherapy platform, delivering the same highly conformal and homogeneous dose distribution faster with 18% higher dose rates and 66% faster imaging times.



ACCURAY PRECISION® TREATMENT PLANNING AND IDMS® DATA MANAGEMENT SYSTEMS

The additional functionalities provided with the recently released treatment planning and data management systems (Accuray Precision and iDMS) are expected to further improve clinical outcomes and treatment efficiency. The fully integrated and automated PreciseART® Adaptive Radiation Therapy option makes plan monitoring and replanning practical for every patient and every clinic. The automatic contouring option (Head & Neck AutoSegmentation™) enables consistent and efficient treatment planning.

Important Safety Information

Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury, and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), and the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and to see if treatment with an Accuray product is right for you, ask your doctor.

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TomoTherapy® Radixact®