

# PerCryo™ Ablation

CLINICAL DATA REVIEW

2015



# Renal Data Summary

Author	Publication	Average Follow-Up (months)	Number of Patients	Radiographic Efficacy	Grade $\geq 3$ Complications
Kim, <i>et al</i>	<i>J Urology</i> 2014 <sup>1</sup>	39	118	86%	3%
Breen, <i>et al</i>	<i>BJUI</i> 2013 <sup>2</sup>	20	104	99%	11%
Duffey, <i>et al</i>	<i>J Endourology</i> 2012 <sup>3</sup>	27	116	97%	2%
Altunrende, <i>et al</i>	<i>J Urology</i> 2011 <sup>4</sup>	15	29	90%	N/A
Rodriguez, <i>et al</i>	<i>CVIR</i> 2011 <sup>5</sup>	17	113	99%	3%
Atwell, <i>et al</i>	<i>J Urology</i> 2010 <sup>6</sup>	26	80	95%	7%
Hinshaw, <i>et al</i>	<i>AJR</i> 2008 <sup>7</sup>	15	30	100%	0%

# Thoracic Data Summary

Authors	Publication	Average Follow-Up (months)	Number of Patients	Local Control	Pneumothorax	Pneumothorax Requiring Chest Tube	Grade ≥3 Complications
<i>Moore, et al</i>	JVIR 2015 <sup>8</sup>	51	45	85%	51%	15%	6%
<i>Yashiro, et al</i>	JVIR 2013 <sup>9</sup>	19	71	76%	N/A	N/A	N/A
<i>Woodrum, et al</i>	RSNA 2013 <sup>10</sup>	6	40	95%	50%	18%	6%
<i>Inoue, et al</i>	JVIR 2012 <sup>11</sup>	30	117	N/A	62%	11%	2%
<i>Yamauchi, et al</i>	PLoS ONE 2012 <sup>12</sup>	29	22	97%	28%	5%	N/A
<i>Wang, Littrup, et al</i>	Radiology 2005 <sup>14</sup>	12	187	83%	12%	8%	N/A

# Liver Metastases Data Summary

<b>Author</b>	<b>Publication</b>	<b>Average Follow-Up (months)</b>	<b>Number of Patients</b>	<b>Local Control</b>	<b>Bleeding</b>	<b>Other Complications</b>
<i>Xu, et al</i>	<i>WJG 2008<sup>15</sup></i>	32	326	94%	1.5%	5%

# Nerve Pain Data Summary

<b>Author</b>	<b>Publication</b>	<b>Number of Patients</b>	<b>Freeze Time (Seconds)</b>	<b>Pre-Procedure Pain</b>	<b>Post-Procedure Pain (Immediate)</b>	<b>Post-Procedure Pain (2-3 months)</b>
Moore, <i>et al</i>	<i>Acad Rad</i> 2010 <sup>16</sup>	18	90	7.5	1.2	4.1

# Other Indications for Use

- Palliative intervention
- Ablation of benign tumors
- Ablation of prostate tissue in cases of prostate tissue or benign prostatic hyperplasia

# References

- <sup>1</sup>Kim EH, Tanagho YS, Saad NE, Bhayani SB, Figenshau RS: Comparison of Laparoscopic and Percutaneous Cryoablation for Treatment of Renal Masses. *Urology* 2014; 83:1081-1087.
- <sup>2</sup>Breen DJ, Bryant TJ, Abbas A, Shepherd B, McGill N, Anderson JA, Lockyer RC, Hayes MC, George SL: Percutaneous Cryoablation of Renal Tumours: Outcomes from 171 Tumours in 147 Patients. *BJU Int* 2013; 112:758-765.
- <sup>3</sup>Duffey B, Nguyen V, Lund E, Koopmeiners JS, Hulbert J, Anderson JK: Intermediate-Term Outcomes after Renal Cryoablation: Results of a Multi-Institutional Study. *J Endourol* 2012; 26:15-20.
- <sup>4</sup>Alturnde F, Autorino R, Hillyer S, Yang B, Laydner H, White MA, Khanna R, Isac W, Spana G, Stein RJ, Haber GP, O'Malley CM, Remer EM, Kaouk JH: Image Guided Percutaneous Probe Ablation for Renal Tumors in 65 Solitary Kidneys: Functional and Oncological Outcomes. *J Urology* 2011; 186:35-41.
- <sup>5</sup>Rodriguez R, Cizman, Hong K, Koliatsos, Georgiades C: Prospective Analysis of the Safety and Efficacy of Percutaneous Cryoablation for pT1NxMx Biopsy-Proven Renal Cell Carcinoma. *Cardiovasc Intervent Radiol* 2011; 34:573-578.
- <sup>6</sup>Atwell TD, Callstrom MR, Farrell MA, Schmidt GD, Woodrum DA, Leibovich BC, Chow GK, Patterson DE, Blute ML, Charboneau JW: Percutaneous Renal Cryoablation: Local Control at Mean 26 Months of Follow-Up. *J Urology* 2010; 184:1291-1295.
- <sup>7</sup>Hinshaw JL, Shadid AM, Nakada SY, Hedican SP, Winter III TC, Lee Jr FT: Comparison of Percutaneous and Laparoscopic Cryoablation for the Treatment of Solid Renal Masses. *AJR* 2008; 191:1159-1168.
- <sup>8</sup>Moore W, Talati R, Bhattacharji P, Bilfinger T: Five-Year Survival after Cryoablation of Stage I Non-Small Cell Lung Cancer in Medically Inoperable Patients. *J Vasc Interv Radiol* 2015; 26:312-319.
- <sup>9</sup>Yashiro H, Nakatsuka S, Inoue M, Kawamura M, Tsukada N, Asakura K, Yamauchi Y, Hashimoto K, Kuribayashi S: Factors Affecting Local Progression after Percutaneous Cryoablation of Lung Tumors. *J Vasc Interv Radiol* 2013; 24:813-821.
- <sup>10</sup>Woodrum DA, Debaere T, Abtin FG, Littrup PJ, Deschamps F, Suh RD, Aoun HD, Callstrom MR: Evaluating Cryoablation of Metastatic Lung/Pleura Tumors in Patients: Safety and Efficacy. *RSNA* 2013; Abstract VSI031-14.
- <sup>11</sup>Inoue M, Nakatsuka S, Yashiro H, Ito N, Izumi Y, Yamauchi Y, Hashimoto K, Asakura K, Tsukada N, Kawamura M, Nomori H, Kuribayashi S: Percutaneous Cryoablation of Lung Tumors: Feasibility and Safety. *J Vasc Interv Radiol* 2012; 23:295-302.
- <sup>12</sup>Yamauchi Y, Izumi Y, Hashimoto K, Yashiro H, Inoue M, Nakatsuka S, Goto T, Anraku M, Ohtsuka T, Kohno M, Kawamura M, Nomori H: Percutaneous Cryoablation for the Treatment of Medically Inoperable Stage I Non-Small Cell Lung Cancer. *PLoS ONE* 2012; 7:e33223.
- <sup>13</sup>Karamura M, Izumi Y, Tsukada N, Asakura K, Sugiura H, Yashiro H, Nakano K, Nakatsuka S, Kuribayashi S, Kobayahi K: Percutaneous Cryoablation of Small Pulmonary Malignant Tumors Under Computed Tomographic Guidance with Local Anesthesia for Nonsurgical Candidates. *J Thorac Cardiovasc Surg* 2006; 131:1007-1013.
- <sup>14</sup>Wang H, Littrup PJ, Duan Y, Zhang Y, Feng H, Nie Z: Thoracic Masses Treated with Percutaneous Cryotherapy: Initial Experience with More than 200 Procedures. *Radiology* 2005; 235:289-298.
- <sup>15</sup>Xu KC, Niu LZ, He WB, Zuo JS: Percutaneous Cryosurgery for the Treatment of Hepatic Colorectal Metastases. *World J Gastroenterol* 2008; 14:1430-1436.
- <sup>16</sup>Moore W, Kolnick D, Tan J, Yu HS: CT Guided Percutaneous Cryoneurolysis for Post-Thoracotomy Pain Syndrome. *Acad Radiol* 2010; 17:603-606.



