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**Title:** Primary lung cancer treated using radiofrequency ablation – One year outcome data

Dr. Faisal 7772 Kamal f.kamal@rbht.nhs.uk MD <sup>1</sup>, Ms. Julie 7773 Beeson j.beeson@rbht.nhs.uk <sup>1</sup>, Dr. Sunny 7774 Kaul sunnykaul@aol.com MD <sup>2</sup>, Dr. Sarah 7775 Stirling s.stirling@rbht.nhs.uk <sup>2</sup>, Dr. Simon 7776 Mattison s.Mattison@rbht.nhs.uk MD <sup>2</sup>, Ms. Juliette 7777 Tennant j.tennant@rbht.nhs.uk <sup>3</sup>, Mr. Pasha 7985 Normahani pnormahani@gmail.com <sup>4</sup> and Dr. Paras 7991 Dalal p.dalal@rbht.nhs.uk MD <sup>3</sup>. <sup>1</sup>

Respiratory Medicine, Royal Brompton & Harefield Hospitals NHS Foundation Trust, London, United Kingdom, UB9 6JH ; <sup>2</sup> Critical Care, Royal Brompton & Harefield Hospitals NHS Foundation Trust, London, United Kingdom, UB9 6JH ; <sup>3</sup> Radiology, Royal Brompton & Harefield Hospitals NHS Foundation Trust, London, United Kingdom, UB9 6JH and <sup>4</sup> Medical School, imperial College, London, United Kingdom .

**Body:** Background Percutaneous image guided radiofrequency ablation (RFA) is increasingly used as an alternative treatment option for patients with inoperable primary non small cell lung cancer (NSLC) but there are little published outcome data. We report safety & efficacy of RFA in patients with NSCLC (stages 1-4) at 1 year. Methods Thirty-eight patients underwent 50 RFA procedures. Complications, local progression & survival were evaluated prospectively at 3, 6, 9 & 12 months. Statistical analysis was performed using log rank test & Cox regression analysis to determine hazard ratios with 95% confidence intervals (CI). Kaplan-Meier survival curves were plotted to show any differences in the survival pattern using Stata 10.1 (Statacorp, Texas USA). Results There were no cases of procedure related mortality. Complications included pneumothorax (61%) of which 10 patients (43%) had an iatrogenically created pneumothorax as part of the procedure, pleural effusion (5%) & respiratory failure (3%). At 1 year: new (suspicious) nodules observed in 21% (n=8), 88% of patients with tumours <3cm were progression free compared to 76.9% of tumours >3cm (p=0.36). Mean time to progression for all cases 11.4 months (CI 10.7-12.1). Tumours <3cm (n=25, 11.6 months, CI 11.1-12.3) versus tumours >3cm (n=13, 10.9 months, CI 9.0-12.7). Overall & cancer specific 1 year survival were 86.8% & 92.1% respectively. 1 year survival for tumours <stage 4 (n=27) and those at stage 4 (n=11) were 89 % (n=24/27) and 63.6% (n= 7/11) respectively which did not reach statistical significance. Conclusion RFA is a safe, effective & well-tolerated treatment option in patients with inoperable primary lung cancer (stages 1-4).