Cryoablation of Renal Cell Carcinoma

CONSCIOUS SEDATION vs GENERAL ANAESTHESIA

WEIGH UP THE BENEFITS

Conscious sedation allows you to treat more patients in less time

The confidence to choose. The power to personalise. Change the fight against cancer.
Cryoablation of Renal Cell Carcinoma with Conscious Sedation

General anaesthesia (GA) and local anaesthesia with conscious sedation (LACS) for cryoablation of renal cell carcinoma are both viable anaesthetic approaches with similar safety and efficacy profiles. However, LACS offers significant benefits in terms of efficiency and resource allocation, and may be performed as a day case.

Percutaneous renal cryoablation is a proven procedure, which may be performed as a day case under local anaesthesia.

Explore the benefits of cryoablation of renal cell carcinoma with LACS for these different stakeholders:

- **Hospitals (Payers)**
- **Urologists**
- **Patients**

PACU: Postanaesthesia care unit

The confidence to choose. The power to personalise. Change the fight against cancer.
Cryoablation of Renal Cell Carcinoma

CONSCIOUS SEDATION

VS

GENERAL ANAESTHESIA

Significantly **REDUCED** procedure time:

68.78<sup>1</sup>-102 MINS vs 133<sup>1</sup> MINS

**SHORTER** 1.08 DAYS hospital stay<sup>1</sup> vs 1.95 DAYS

Average €640/day

**REDUCED** anaesthesia medication<sup>6</sup>

HOSPITAL ANALYSIS SHOWED Saving $1,816/per patient

*Increased efficiencies &

Reduced demand on:

• Resources
• Bed capacity

REMEMBER

CRYOABLATION of RCC has LOWER RATES OF RECURRENCE vs SURGERY*
Cryoablation of Renal Cell Carcinoma

CONSCIOUS SEDATION
VS
GENERAL ANAESTHESIA

LOWER ASSOCIATED RESOURCE CONSUMPTION

- REDUCED time spent in PACU and ASU
- LOWER need for anaesthetic healthcare professional
- AVOIDED sedation related adverse events and its associated costs

- FEWER monitoring requirements

- Significantly REDUCED COSTS with use of local anaesthesia (in cutaneous procedures)

- HIGHER patient turnover
- REDUCED demand on hospital staff

ASU: Ambulatory Surgery Unit
PACU: Postanaesthesia care unit

The confidence to choose. The power to personalise. Change the fight against cancer.
Cryoablation of Renal Cell Carcinoma

CONSCIOUS SEDATION

VS

GENERAL ANAESTHESIA

Low treatment and procedural failure rates\(^2\)

Cryoaulation under LACS is an effective & safe procedural approach\(^2\)

INCREASE

THE RANGE OF PATIENTS THAT CAN BE TREATED

Patients UNSUITABLE for general anaesthesia (given associated risks)

Patients SUITABLE for GA but looking for faster, lower-risk alternative

CS: Conscious sedation

GA: General anaesthesia

LACS: Local anaesthesia with conscious sedation

The confidence to choose. The power to personalise. Change the fight against cancer.
Cryoablation of Renal Cell Carcinoma
CONSCIOUS SEDATION
vs
GENERAL ANAESTHESIA

- SHORTER hospital stay
- QUICKER recovery from anaesthesia
- INCREASED incidence of excellent patient satisfaction
- Vital signs don't change significantly
- DECREASED adverse events related to sedation

Cryoablation of RCC vs Surgery
- LOWER rates of recurrence
- LOW complication rate
- LOW pain scores

The confidence to choose. The power to personalise. Change the fight against cancer.
Cryoadblation of Renal Cell Carcinoma with Conscious Sedation: Example Protocol

Average hospital stay per patient: 6 HOURS

Example protocol of local anaesthesia with conscious sedation for cryoadblation of renal cell carcinoma as practised at Odense University Hospital, Denmark. Graphical representation produced here with permission.
**Cryoablation of Renal Cell Carcinoma with Conscious Sedation: Example Protocol**

**PRE PROCEDURE**

2-3 HOURS BEFORE TREATMENT

Premedication:

- 1g Paracetamol
- 8mg Dexamethasone

**SEDATION**

View protocol

**PROCEDURE**

View protocol

**POST PROCEDURE**

View protocol
Cryoablation of Renal Cell Carcinoma with Conscious Sedation: Example Protocol

### SEDATION: DEXMEDETOMIDINE + REMIFENTANIL

**DEXMEDETOMIDINE**

- **ABOUT DEXMEDETOMIDINE (DEXDORE)**
  - Selective α-2 receptor agonist which is more specific than clonidine
  - Sympatholytic effect, reducing noradrenaline release from the sympathetic nerve endings
  - Pre-dominant effects are:
    - Sedation
    - Anxiolysis
    - Hypotension
    - Lower heart rate
  - Breathing is unaffected, regardless of dose (practical advantage)
  - Dexmedetomidine sedates the patient at the same level as propofol and midazolam and reduces the need for analgesics

**REMITFENTANIL**

**DEXMEDETOMIDINE ADMINISTRATION**

- Dexmedetomidine is always given as an infusion via a syringe pump
- Initial infusion rate 0.7µg/kg/hour
- Expect effect after 20 minutes, after which infusion rate can be increased to 0.8µg/kg/hr
- It can be diluted with sodium chloride 9mg/ml, Ringer acetate or glucose 5g/dl
- A concentration of 4µg/ml is used in this protocol
- 2ml dexmedetomidine concentrate (100µg/ml) is mixed with sodium chloride to a total volume of 50ml
- The finished infusion solution should be used as soon as possible, but may be stored for up to 24 hours at room temperature
Cryoablation of Renal Cell Carcinoma with Conscious Sedation: Example Protocol

**SEDATION: DEXMEDETOMIDINE + REMIFENTANIL**

**DEXMEDETOMIDINE**

**ABOUT REMIFENTANIL (ULTIVA)**
- Remifentanil is a powerful analgesic, which is used as an anaesthetic
- It has a narrow therapeutic window and minimum effective analgesic concentration (MEAC) – this is especially pronounced when co-administering dexmedetomidine
- Both dexmedetomine and remifentanil are associated with bradycardia

**REMIFENTANIL ADMINISTRATION**
- Initiated at a rate of 3µg/kg/hr
- Can be increased to 6µg/kg/hr and adjusted up or down every five minutes by 1.5µg/kg/hr depending on patient’s analgesia level and respiratory rate
Example protocol of local anaesthesia with conscious sedation for cryoablation of renal cell carcinoma as practised at Odense University Hospital, Denmark. Graphical representation produced here with permission.
Cryoablation of Renal Cell Carcinoma with Conscious Sedation: Example Protocol

**POST PROCEDURE**

Once the procedure is complete:

- Stop the dexmedetomidine and remifentanil infusions
- After a few minutes, the patient will be awake and able to move themselves from the CT table to the bed
- Transfer to PACU for monitoring (approx 1 hour)
- Transfer to urology department (2-3 hours)
- No need for fasting
- Leaves hospital 3-4 hours after procedure
Cryoablation of Renal Cell Carcinoma with Conscious Sedation: Workflow Benefits

- **Cleaning & Preparation per Patient:** 45-60 minutes
- **Average Needle Time per Patient:** 60-90 minutes
- **Daily Workflow:** 7.5 Hours
- **Average Number of Procedures:** 2-3 Patients

**Workflow Breakdown:****

**0:00 - 1:00**
- CRYOABLACTION OF RENAL CELL CARCINOMA

**1:00 - 2:00**
- CLEANING & PREPARATION

**2:00 - 3:00**
- CLEANING & PREPARATION

**3:00 - 4:00**
- CLEANING & PREPARATION

**4:00 - 5:00**
- CLEANING & PREPARATION

**5:00 - 6:00**
- CLEANING & PREPARATION

**6:00 - 7:00**
- CLEANING & PREPARATION

**7:00 - 7:30**
- PATIENT PREPARATION

The confidence to choose. The power to personalise. Change the fight against cancer.
Cryoablation of Renal Cell Carcinoma

The Benefits of Conscious Sedation...

...for the patient

Average hospital stay: 6 HOURS

...for the hospital & staff

Daily workflow:
7.5 HOURS
2-3 PATIENTS

REFERENCES

4. Ole Graumann, Meet the expert session, CIRSE 2020.