

Remimazolam Use in NORA Sedation
Does it Make Sense For You?

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Disclosures

I have no disclosures

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Objectives

- Summarize the strengths and weakness of remimazolam use in NORA sedation
- Determine if remimazolam has a place in YOUR practice

Remimazolam = remimazolam besylate = remimazolam tosylate

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Pro: Fast On and Fast Off

Benzodiazepines

Midazolam¹ Remimazolam Inactive Metabolite, CNS7054

Active Metabolites: 1-hydroxy midazolam, 4-hydroxy midazolam

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Side by Side Comparison

Sedative	Midazolam	Remimazolam	Propofol
Distribution Half-Life	6-15 minutes	0.5-2 minutes	2-3 minutes
Onset	3-5 minutes	1-1.5 minutes	9-51 seconds
Recovery	2 hours	11-14 minutes	10 minutes
Metabolism	Hepatic	Tissue esterases	Hepatic/extrahepatic
Active Metabolite	Yes	No	No
Elimination Half-Life	2-6 hours	0.6-0.9 hours	0.7 hours
Volume of Distribution at Steady State	1.1-1.7 L/kg	0.76-0.98 L/kg	2-10 L/kg

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Con: Sometimes Too Fast!

Midazolam¹ → Remimazolam → Inactive Metabolite, CNS7054

Active Metabolites: 1-hydroxy midazolam, 4-hydroxy midazolam

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Con: Reconstitution!

byfavo (remimazolam) for injection

20 mg/vial C_{IV}

Reconstitution!

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Con: Cost

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Con: Cost

Intraoperative IV medications	Patient 1		Patient 2		Patient 3		Patient 4		Patient 5		Patient 6	
	Case 1	Case 2										
Fentanyl (mcg)	50	25	-	50	100	100	100	100	50	50	-	-
Midazolam (mg)	-	-	-	-	3	2	-	2	-	-	-	-
Propofol (mg)	97.4	-	116.7	-	321.6	-	158.8	-	102.8	-	182.9	-
Remimazolam (mg)	-	8	-	20	-	28	-	13	-	17	-	16
Cost	\$15.27	\$48.07	\$21.00	\$48.07	\$55.07	\$94.87	\$31.67	\$48.07	\$24.67	\$48.07	\$28.00	\$46.80

Thank you Bridget Marcinkowski and Ioanna Serafin

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Con: Reconstitution & Administration

8.2 mL + 2.5 mg/mL → synergism

Administration: 2.5 or 5 mg, 1.25 or 2.5 mg q2+ minutes

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Off-Label Use

20 mL + 1 mg/mL → synergism

Administration: +/ - 2-5 mg drip: 20-60 mg/hour

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Con: Learning Curve

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Remimazolam is...

easy to use

CRNA Survey

time-consuming

well-tolerated by patients

a useful addition to my toolkit

Thank you Bridget Marcinkowski and Joanna Serafin

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Pro: Less Respiratory Effects

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Pro: Less Cardiovascular Effects

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Pro: Ideal For....

- ✓ Prone
- ✓ Obese
- ✓ Respiratory fragility
- ✓ CV fragility
- ✓ ASA physical status 3-4

AVOID:

- ✗ Heavy alcohol use
- ✗ High benzo use
- ✗ Chronic phenytoin use
- ✗ Severe hepatic impairment

Not approved:

- ✗ Pregnant patients
- ✗ Pediatric patients

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Case: Prone Caudal Epidural Steroid Injection

- 75-year-old
- Metastatic lung cancer (chemo/RT)
- Chronic pain
- Hypertension

VITALS	08:15	08:20	08:25	08:30	08:35	08:40	08:45
SpO2 (%)	98	98	98	98	98	98	98
HR (b/min)	80	80	80	80	80	80	80
BP (mmHg)	140/80	130/70	120/70	110/70	110/70	110/70	110/70
RR (b/min)	18	18	18	18	18	18	18
Remimazolam (mg/hr)	5	5	5	5	5	5	5
Fentanyl 50 mcg (mg)	30	30	30	30	30	30	30
Hydrocodone 5 mg (mg)	4	4	4	4	4	4	4
Propofol (mg)	100	100	100	100	100	100	100
Etomidate (mg)	1	1	1	1	1	1	1
EtOH (mg)	121.81	121.81	121.81	121.81	121.81	121.81	121.81
Est. Blood Sat. (mL)	0	0	0	0	0	0	0
Urine	0	0	0	0	0	0	0
Respiratory rate	18	18	18	18	18	18	18
Vent mode	SV						
EtOH	50 mg	50	50	50	50	50	50
SpO2 (%)	100	100	100	100	100	100	100
EtCO2 (mmHg)	45	45	45	45	45	45	45
Temp	36	36	36	36	36	36	36

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Case: Pleurex Catheter Placement

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- 60-year-old
- Metastatic breast cancer (chemo/RT)
- Chronic pain
- Home O2 use

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Summary

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PRO: Procedures ≤30 mins **CON**

- Fast on and off
- Less respiratory depression
- Less cardiovascular depression
- Ideal for sicker patients and prone positioning

- Can be too fast
- Reconstitution required
- Cost
- Administration/learning curve

Beware of remifentanyl

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