

Ozone Injection for the treatment of Chronic Pain

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Ozone Injection is a new therapy in China but develop fast

- **Ozone Injection in management of pain has been used in China for 12 years.**
- **The Chinese Chapter of World Society of Pain Clinicians organized the Chinese Association of Ozone Therapy in 2008.**
- **We organize National Ozone Conference once a year.**
- **There are about 4000 doctors using ozone therapy now including ozone injection and majeure autohemo therapy.**

Ozone therapy in 2009

- **There are 8 Ozone generators in my department. 6 of them from German and 2 made in China.**
- **We finished more than 10000 cases of outpatient treatment with ozone injection including trigger point injection, joint injection and epidural injection annually.**
- **About 500 cases intradiscal injections and 800 cases epidural injections via implanted epidural catheter annually for treatment of cervical and lumbar disc herniation. It is about the 30% of all the interventional procedures in my department.**
- **Ozone has been used combined in continuous cervical and lumbar sympathetic nerve block.**
- **Good efficacy also occurred in the treatment of noncancer visceral pain.**

Ozone injection

- **Ozone (O_3) has three effects:**
 - dissolution of nucleus pulposus**
 - antiinforlamation**
 - analgesia.**
- **treatment of spinal disc herniation by injection in herniated discs.**
- **treatment of spinal disc herniation by epidural space injection.**

Ozone injection for sympathetic related pain and visearal pain

- **Cervical sympathetic ganglion injection**
- **Thoracic sympathetic ganglion injection**
- **Lumbar sympathetic ganglion injection**
- **Celiac Plexus injection**
- **superior hypogastric plexus injection**
- **Inferior hypogastric plexus injection**

Continuous Cervical sympathetic ganglion blockade and repeated ozone injection

- **upper extremity phantom pain**
- **upper extremity Stump neuralgia**
- **upper extremity CRPS**

Continuous lumbar sympathetic ganglion block and repeated ozone injection

- **SMP**
- **Cancer Pain**
- **Buerger' s disease**
- **Refractory Ischemic Ulcer of Lower Extremity**
- **CRPS**
- **Phantom Limb Pain**
- **Diabetic neuralgia**

Ozone injection during continuous celiac Plexus block

Ablative block of Celiac Plexus in treating cancer visceral neuralgia has been widely used.

- Ozone injection used during continuous celiac plexus block for the treatment of abdominal none cancer visceral neuralgia.**
- Such none cancer visceral neuralgia has very close relationship with lumbar disc herniation, called discogenic visceral pain.**

conclusion

- **Ozone injection into trigger point, joint and epidural space showed good efficacy with less side effect in the management of chronic pain.**
- **Long term follow-up and contrast study are needed.**
- **The application in the treatment of visceral pain will be the new field to research.**