

Ultrasound or Fluoroscopy Guidance for Interventional Treatment of Back Pain

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Back pain is one of the most common medical and social problems worldwide. In 2021 low back pain globally affected to 628.8 million people [8]. Treatment of this condition included exercises, behavioral treatment, physiotherapy, psychological and social support, manual therapy, acupuncture, medications, interventional pain management and surgery. For the treatment of this conditions, initially conservative modalities are using but in cases when they are failing, pain interventions and surgeries are indicated.

There are different types of pain interventions: Injections, nerve blocks and ablation, nerve stimulation (spinal cord, peripheral), intrathecal pain pumps. Traditionally, most of these procedures are performing under the fluoroscopy guidance. This allows proper needle placement based on good bone visualization. On the other-hand fluoroscopy guided procedures are related to radiation exposure, which might be harmful for both patients and medical personnel despite of radiation protection measures. Ultrasound guidance is not related to any adverse effects and can be used fir spinal interventions but is questionable: is it a affordable alternative of C-arm or not? According to Nisolle at all ultrasound guidance was not inferior to fluoroscopy for lumbar medial branch block [1]. Similar results received by Award et al for cervical facet radiofrequency ablation. Moreover, ultrasound guidance significantly reduced the procedural time [2]. Mansour et al. found that ultrasound guidance is safe and effective for in selective lumbar nerve root injection for treatment of radicular pain [3]. Viderman D et al analysed randomized control trials and had been shown, that ultrasound and fluoroscopy guided procedures are equally effective for sacroiliac joint, transforaminal, interlaminar and caudal epidural steroid injections [4]. Zhao et al. found that ultrasound guidance is not inferior to fluoroscopy for intradiscal procedures [5]. Recently Zheng et al had been shown that ultrasound guidance is safe and effective for endoscopic lumbar discectomy surgery [6]. Finally, analyzing all pros and cons of ultrasound guidance for pain medicine Moon is concluded that is practically no cons and technical progress will make ultrasound guidance more popular in pain medicine [7].

In conclusion we can say that ultrasound guidance makes visible not only bones and procedural needle, but all structures including muscles, tendons and blood vessels. It makes ultrasound a safe and affordable tool for practically all spine procedures and practical decision: ultrasound or fluoroscopy mostly is depending under local preferences and skills of practitioner.

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