



## PERCUTANEOUS VERTEBROPLASTY IN THE TREATMENT OF OSTEOPOROTIC VERTEBRAL FRACTURES

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Osteoporosis is characterized by a reduction in bone mineral density caused by the deterioration of bone microarchitecture, predisposing patients to low-impact fragility fractures. Osteoporotic fractures lead to a significant decrease in quality of life, increasing morbidity, mortality, and disability. To determine the efficacy and safety of percutaneous vertebroplasty for the treatment of vertebral fractures of osteoporotic origin, as reported in scientific literature. This bibliographic study was based on the data that has been collected from the PubMed and Google Scholar platforms. Inclusion criteria for the scientific articles were: studies published between 2015 and 2025, patients treated with percutaneous vertebroplasty, and a diagnosis of "pathological vertebral fracture (osteoporotic)." Pain relief was observed in 60% to 100% of patients within the first 24 hours after the procedure, and this outcome increased to 78%–100% in the long term. None of the patients reported worsening of the symptoms after having the procedure. Immediate complications were related to cement leakage into intervertebral and paravertebral spaces and pedicular cement spurs, with no clinical consequences. No clinically significant complications were reported immediately after the procedure or during follow-up. In the long term, percutaneous vertebroplasty has been associated with an increased risk of fractures in adjacent vertebrae. Percutaneous vertebroplasty for osteoporotic vertebral fractures is a minimally invasive procedure, that provides immediate and sustained pain relief for patients with refractory pain. An individualized approach is required to achieve optimal efficacy and safety outcomes.

## BIG DATA IN PSYCHIATRY: CURRENT APPLICATIONS IN DIAGNOSIS, PREVENTION AND PERSONALIZED TREATMENTS

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With the digitalization of healthcare systems, psychiatry has begun to integrate data science concepts to better understand the mechanisms of disorders. The complex analysis of biological, behavioral, and clinical data allows for a more complete clinical picture and improved prediction of disease progression. The aim of this paper is to explore how Big Data is used in psychiatry to improve early diagnosis, predict relapses, and personalize treatment. A systematic review of 24 publications from 2015 to 2024 was conducted using databases such as PubMed and Nature. The included studies used clinical data, brain imaging, digital monitoring, genetic information, and artificial intelligence applied in psychiatric assessment, intervention, relapse prediction, and treatment monitoring. Large-scale resources (ENIGMA, PGC, UK Biobank) and routinely collected digital footprints enabled population-level analyses in psychiatry. Methodological reviews emphasize that careful feature engineering, data harmonization, and external validation are crucial; naïve application of complex models risks overly optimistic estimates. Big Data has helped clarify the architecture of disorders and enabled scalable measurement, but its clinical utility depends on multimodal integration, robust external validation, and precise calibration. The study confirms that the integration of multidimensional data (clinical, digital, and biological) can enhance the accuracy of relapse prediction and treatment response in psychiatry. Big Data is becoming a valuable tool in the development of personalized psychiatry and preventive interventions.