

Twenty-one years ago the first patent was filed for treating bone pathologies using high energy shock waves.

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Institutions:

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Device and producing company:

Osteostar – Siemens

Introduction:

Twenty-one years ago the authors patented a method and apparatus for treatment of bone pathology with high-energy shock waves. The authors, Mihaylov and Valchanov, began experimenting on the impact of shockwaves on bones at the beginning of 1986. Their idea was derived from the method of lithotripsy for treating kidney-stones in the distal part of the ureter with Dornier's HM-3 lithotripter.

Methods:

The experiments were performed on corpse bones and in vivo on rabbits and dogs. As a result, the authors decided to begin treatment of pseudoarthrosis with retarded consolidation with shockwaves instead of the method by Judet (1965). Their idea was to destroy the eburnated edges of the pseudoarthrosis and, at the same time, keep intact the periosteum. That way, by preserving the osteogenic material in the periosteum, rapid vascularization and consolidation of the bone is achieved.

Results:

In the period from June 1986 to October 1986 the first patients, with a diagnosis of pseudoarthrosis were treated. A modified version of Dornier's HM-3 lithotripter was used. After the excellent results achieved with ten patients, the authors decided to widen the usage of ESWOR Extracorporeal shockwave osteorestitution.

Discussion: A new specialized device for orthopedic services, called the "Osteorestorer", was designed in collaboration with Prof. Patrashkov and engineers, Manolov and Kerin.

Conclusion: The prototype was constructed in "Electron" Varna, Bulgaria at the beginning of 1987. The method and apparatus have been registered on 19.05.1987 by Patent Office of Republic of Bulgaria with N79804, patented USA N4979501 with priority-date 19.05.1987 and pretences for 9 medical applications. Another apparatus was designed in collaboration with Siemens, called the "Osteostar". The treatment was applied to over 380 patients on almost every long bone in the human body at Sofia's Military Medical Academy.