# The use of an artificial intelligence computer program in the planning of management of thoraclumbar spine injuries

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-223-SUMMARYAim of the work .The aim of the work is to achieve a nearly optimal diagnosis and treatment">;of the thoracolumbar injuries.Therefore, an expert system in the form an artificial intelligence computerprogram using a prolog language was used to achieve this aim. .Material and MethodsTo perform such program, certain chronologicalsteps were done:First: A data base for diagnosis using the history, the clinical examination and theinvestigations.Second: a data base for different types of osseous injuries and neurologic injuriesin the form 0 rules and conditions.Third: An artificial intelligence computer program to reach a specific diagnosis.Fourth: An algorithm to reach a specific treatment.. Discussion.A comparative study was done between the management adopted by thehuman decision making and the management adopted by the program through a 25cases study.Five cases were treated using conservative methods and 20 cases weretreated with different surgical techniques.Review of literature.A review of literature was done covering every topic such as surgicalanatomy, biomechanics, pathomechanics of both osseous and neurologic deficits.One method of classification was adopted because it goes with our systemin doing artificial intelligence expert system.A special chapter in instrumentation biomechanics ~as put.The Conclusion:The program presented:(1) A comprehensive file for the patient with high efficacy.(2) All types of osseous and neurologic deficits.(3) Diagnosis of trauma.(4) The required investigations for each injury.(5) The methods of treatment early and late for each injury. It provides a detailedplan of management which helps the surgeon to achieve a sufficient andaccepted outcome described in the literature.(6) Prognosis of every management.(7) The specific referrences of each treatment.The expert system provided a comprehensive management plan forthoracolumbar and spinal cord injuries for orthopedic surgeons and spinal surgeon2 • The system is a way of medical communication , education and teaching.'.-224-_ Sharing of the local community authorities and the community medicine in acampaign to :I ) Define the national incidence of acute traumatic spinal cord injuries.II ) Identify the high risk groups in order to target preventive strategies.III ) Determine the etiologies.IV ) Evaluate services.- A combined management plan approacn lor thoracolumbar injuries, and thisnecessitate construction of a spinal injury center._ A locally manufactured spinal implant and instrumentation which provides acheap, effective and easily used implant for

thoracolumbar spine injuries.- The thoracolumbar spine trauma expert system is a point system thatcan be used to assist but not to replace the surgeon in the decision makingprocess.- The spine surgeon must rely on common sense combined with clinicalastuteness.- There is no substitute tor common sense._ No substitution for meticulous surgical technique.- Through a comprehensive details of history , clinical examination, a highcost investigations are not required except in a limited situations .- Establishment of a medical research centre for spinal injuries for teachingand training.- Establishment of wide spread govemmental and non - govemmentalcentres especialized in rehabilitation and occupational therapy for thespinal injured patients and supply them with adequate finance and socialneeds.