INTRODUCTION.

The thoracolumbar spine injuries present a great challenge to the patients perhaps more than any other injuries in the body as well as a special therapeutic challenge to the orthopedic surgeons responsible for their care.

No community is free from the spinal injuries, the farmers fall from their poor roofed houses or from different types of trees, the building workers fall from their high scaffolds and traffic accidents end usually with spinal injuries.

In the last ten years, the attitude towards management of the spinal injured patient became completely different owing to the revolution in the development of new investigations and the treatment tools.

Many classifications for thoracolumbar injuries are present as well as great controversy about their management whether operative or non-operative makes the decision more difficult. In addition, there are many types of instrumentions for reduction and fixation.

Because no one method of treatment is well suited for all injuries and no one spinal instrumentation is well suited for all fractures, a wise selection of treatment options is of a great importance, (Ferguson, 1986). So, the computer analysis well be employed to determine the ideal form of stabilization for any given injury, (Buchloz et al, 1986).

Perhaps more than any other medical specialists, orthopedists rely upon tools to perform their work.

The modern digital computer is a tool with almost unlimited capacity for performing work in the area of data and information manipulation.

Present-day computers and computer programs offers solutions to many of the day-to-day information handling problems faced by the academic and clinical surgeons, (Kuslich et al, 1986).

The artificial intelligence programs are the most modern and the most accurate program simulating the human thinking in solving problems.

In this study, a trial of solving the problem of diagnosis and management of the thoracolumbar spine injuries was done using an artificial intelligence program.

Trying to put rules, collected from different studies and from our special study, a scheme of rules and conditions was put to make the way to obtain a nearly optimal diagnosis and consequently a nearly optimal treatment.

The thesis will include:

* The use of an artificial intelligence program in orthopedics and the role of the decision support system.

To test the efficacy of our artificial intelligence computer program a clinical study of 25 cases of thoracolumbar injuries treated with different ways of conservative and operative measures were subjected to studies and evaluations for their results in comparison to the plan of management of the program.

In Egypt, being a developing country, we were faced by great difficulties in the management of the thoracolumbar injured patient and of the spinal cord injured patient.

The conservative method of treating traumatic spines was not only a "no-go" from the beginning, but also needs a specialized center for their care. The conservative method costs the patients more money and their relatives more effort, than what were expected by surgical treatment.

Also, the access to all of the implants, was always hard to come by because of their high cost.

Moreover, a well-prepared, well-equipped surgical theater and a well-trained spinal surgeon were essential for a successful outcome.

The plan of management of these cases was subjected to a human decision depends sometimes on surgeons preference and sometimes on financial situations, but some of these cases follows the prepared computer plan of management.

Also, a detailed discussion of the following topics was done.

* The artificial Intelligence (AI) computer program.
* The literature review of the thoracolumbar injuries.
* Program for methods of planning of management.
* Materials; a review of 25 cases were collected from different community groups
* Methods ; used in the conventional way for diagnosis and management of the 25 cases.
* Results, of the different methods of management.
* Discussion of the differences between the different plans of treatment and in the other hand compared to the computer program.
* Summary and conclusions.
* References.
* Arabic summary.