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THORACIC INJURY SCALE AS REGARDS BONE FRACTURES(or Thoracic Cage Severity Index)

We chose 5 injury levels:

- . Level 1: when a single rib fracture or two occur.
- . Level 2: between 3 and 7 rib fractures, or one sternal (or clavicle) fracture associated with less than 4 rib fractures.
- . Level 3: flail chest (*) without displacement (volet thoracique "accroché" in French.)
More than 3 consecutive twice broken ribs and less than 5 consecutive broken ribs.
- . Level 4: Moving flail chest (volet thoracique "mobile" in French).
- . Level 5: Severe flail chest; the subject would die without quick respiratory aid.

These injury levels become more precise with an appended index which ranks injury severity and which is tied to number of fractures.

- Each rib fracture gives 1 index point if this fracture occurs in the front part of the rib and 0,5 index point in the dorsal part. As regards the 2 upper ribs (n° 1 and 2), each fracture is a point worth.
- A sternal or clavical fracture is worth 3.
- A chondro-costal disjunction is like a fracture.

Carrying out the sum, we get a figure like 3 (6,5) which notes the thoracic injury severity: level 3 with 6,5 points.

Example: we find on a subject 2 broken ribs; these fractures are in the front part.

- + a 3rd broken rib, e.g. the 8th, in its dorsal part.
- + a disjunction.
- + a sternum fracture.

The index is $2 + 0,5 + 1 + 3 = 6,5$ and the thoracic injury severity is 3 (6,5).

However, when a "flail chest" appears, the computation is a little different. In order to emphasize the severity, we add a number of points to the previous index; this number is like the number of broken ribs which make the "flail chest".

Let us assume a flail chest made from 6 ribs. We find 3 (18):

. 6 twice broken ribs.....12
 + 6 ribs making a flail chest. 6

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18

Furthermore, beyond 14 (25) we assume that the level is 5 in each case.

The complete scale becomes:

Level 0: without bone injury

Level 1: 0,5 one rib fracture in the dorsal part,
 1 " " " " " frontal part,
 1,5, 2, 2,5 all combinations like 2 rib fractures in the
 frontal part + 1 rib fracture in the dorsal part.

Level 2: 3 rib fractures in the frontal part and others combina-
 tions.

3,5, 4, 4,5 etc...

7,5 : all combinations like:

- . 4 rib fractures in the frontal part
- . 1 rib fracture in the dorsal part
- + 1 clavicle or sternum fracture.

Level 3:

8, : 8 rib fractures in the frontal part

8,5, 9, 9,5 etc...

15: 5 rib fractures making a flail chest

Level 4:

16 to 25

Level 5:

26 - 27 etc...

Note: in the presentation of the T.C.S.I., the first figure is equivalent to the J.S.I. and figures between brackets represent the detailed index. For instance: 3 (18).

(*) the so-called "flail chest" appears when at least 4 consecutive ribs are broken twice, involving a respiratory problem.

