RATIONAL
Undernutrition is still often underdiagnosed in clinical environment due to the lack of affordable screening tools, applicable to almost all hospital population. The aim of our study is to evaluate the internal validity of a new tool for CONtrolling NUtritional status (CONUT) and its agreement degree with the Subjective Global Assessment (SGA) and a Full Nutritional Assessment (FNA).

METHODS
- A transversal study.
- Inclusion criteria: all inpatients who had blood test done, except those from the Intensive Care Unit, Haemodialysis and Psychiatric Unit.
- Sample: 101 patients were randomly selected.
- Data: 3 nutritional assessment were made during their first week of hospitalisation:
  - CONUT: based on laboratory parameters as albumin, total cholesterol and total lymphocyte count (Table 1). It is made automatically by a computer, using laboratory data bases.
  - FNA: made by a physician and includes complete anamnesis and physical examination, anthropometric and laboratory data (haemogram, plasma glucose, plasma albumin and prealbumin, lipid profile, liver enzymes and renal function tests).
  - SGA: made by a nutritionist. It includes anamnesis and physical examination.
- Statistical analysis:
  - The difference in the mean levels of albumin, cholesterol, and TLC for the nutritional status evaluated by SGA and CONUT was determined using ANOVA test (p<0.005 was considered significant).
  - The agreement degree between CONUT, SGA and FNA was measured by contingency tables using the Kappa index. The association level was measured using X2 test (p<0.005 was considered significant).
- All statistical analysis were performed with the SPSS package, version 8.0.

RESULTS
101 patients were studied, 42 men (41.6%) and 59 women (58.4%). The mean age was 68.4 ± 16.8.5.D. Patients distribution: 80 (79.21%) were from medical services and 21 (20.80%) from surgical ones.

AGREEMENT DEGREE
The agreement degree between CONUT and the Subjective Global Assessment measured as the kappa index is 0.657 (as shown in table II). Kappa index between CONUT and FNA is 0.678 (Table III). As Altman DG a kappa index in a range of 0.61-0.80 indicates a good accordance degree.

INTERNAL VALIDITY
A decrease trend can be observed for albumin, cholesterol and lymphocytes count as the undernutrition degree gets higher, and this trend is statistically significant in all cases. (Figures 2,3 and 4).

CONCLUSIONS
CONUT appears to be a good nutritional screening tool for three reasons:
- The biochemical and immunological parameters included are significatively related to the nutritional status, even in presence of disease.
- Its capacity to discriminate patients malnourished from those who are not, is good related to SGA and FNA.
- As CONUT is easy to use, cost efficient and fast, it can be applied to nearly all inpatient population.
A future logistic regression model is necessary to assign new scores to the three parameters used by CONUT.

REFERENCES

ACKNOWLEDGEMENTS
ABBOTT, FRESENIUS-KABI, GROFIS, NESTLE, NOVARTIS, NUTRICIA and VEGENAT, for their assistance in financing the development and validation of the CONUTProject.

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VALIDATION OF A NEW TOOL FOR NUTRITIONAL SCREENING
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Table I. Degree of undernutrition as evaluated by CONUT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter values</th>
<th>Without deficit</th>
<th>Light</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total albumin</td>
<td>≥ 3.50</td>
<td>56 (55.42%)</td>
<td>10 (9.90%)</td>
<td>1 (0.98%)</td>
<td>3 (3.00%)</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>≥ 160</td>
<td>80 (79.21%)</td>
<td>10 (9.90%)</td>
<td>1 (0.98%)</td>
<td>3 (3.00%)</td>
</tr>
<tr>
<td>Total lymphocytes</td>
<td>≥ 1610</td>
<td>80 (79.21%)</td>
<td>10 (9.90%)</td>
<td>1 (0.98%)</td>
<td>3 (3.00%)</td>
</tr>
</tbody>
</table>

Table II. Agreement degree between CONUT and SGA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Agreement degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONUT</td>
<td>FNA</td>
</tr>
<tr>
<td>Normal</td>
<td>84 (83.20%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>6 (5.90%)</td>
</tr>
<tr>
<td>Severe</td>
<td>2 (1.98%)</td>
</tr>
</tbody>
</table>

Table III. Agreement degree between CONUT and FNA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Agreement degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONUT</td>
<td>FNA</td>
</tr>
<tr>
<td>Normal</td>
<td>88 (87.20%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>4 (4.00%)</td>
</tr>
<tr>
<td>Severe</td>
<td>5 (5.00%)</td>
</tr>
</tbody>
</table>

CONUT appears to be a good nutritional screening tool for three reasons:
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A future logistic regression model is necessary to assign new scores to the three parameters used by CONUT.

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The Spanish Society of Parenteral and Enteral Nutrition, SIMPE, for supporting the project.

The Hospital Universitario de la Princesa, Madrid, Spain.