Novel software for the clinical management of patients affected by endometriosis

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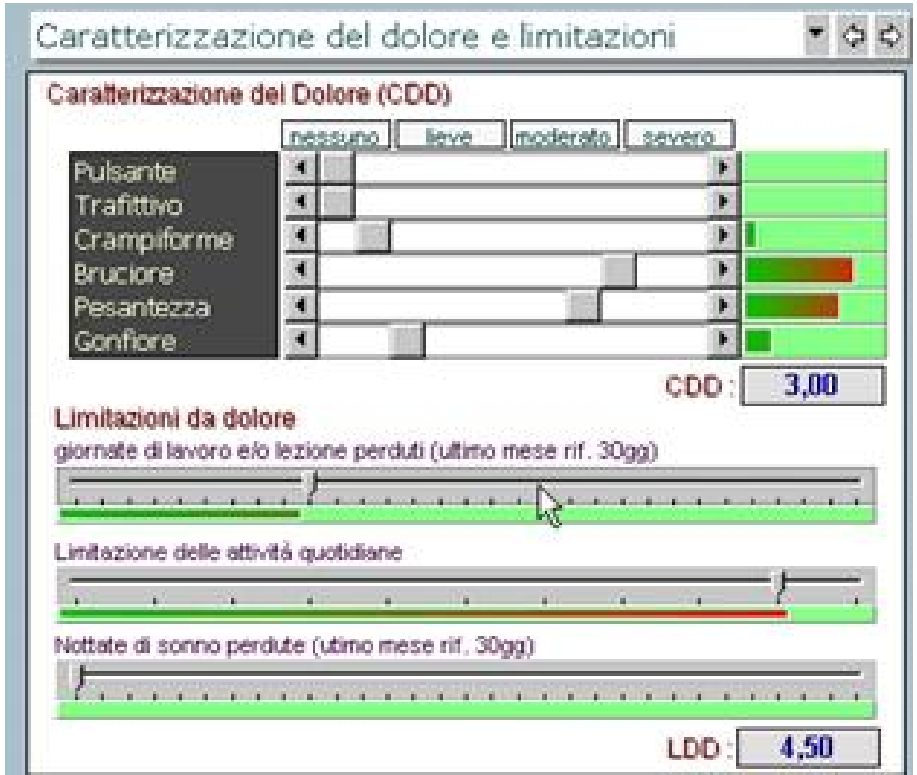


A1-PAIN ASSESSMENT

subitems

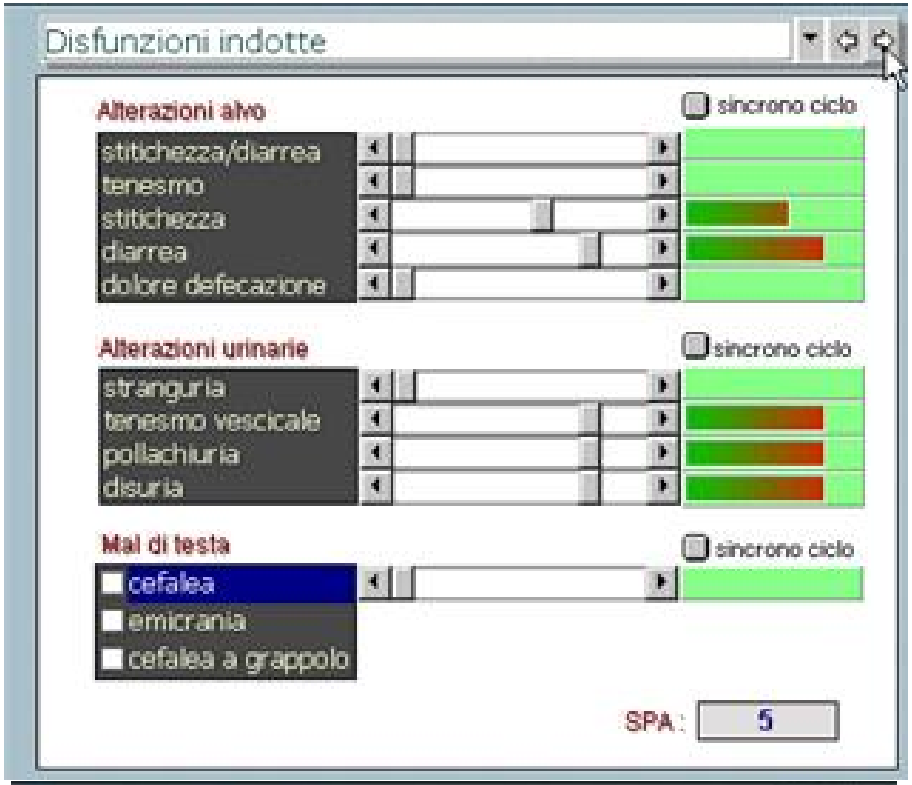
- Dysmenorrhea (IDM)
- Non menstrual pelvic pain (IDP)
- Dyspareunia (DRS)

Sensory dimension of pain CDD)

- Throbbing
- Stabbino
- Cramping
- Hot burning
- Heavy
- Tender

A2 QUALITY OF LIFE LIMITATION (LDD)

- Work/school days of absence
- Daily activity restriction
- Sleep impairment



A3 INDUCED DYSFUNCTION AND PHISICAL ALTERATION (SPA)

- Alternating constipation and diarrhoea
- Rectal tenesmus
- Constipation
- Diarrhoea
- Rectal pain

- Urinary pain
- Bladder tenesmus
- Dysuria

- Headache
- Migraine
- Cluster headache

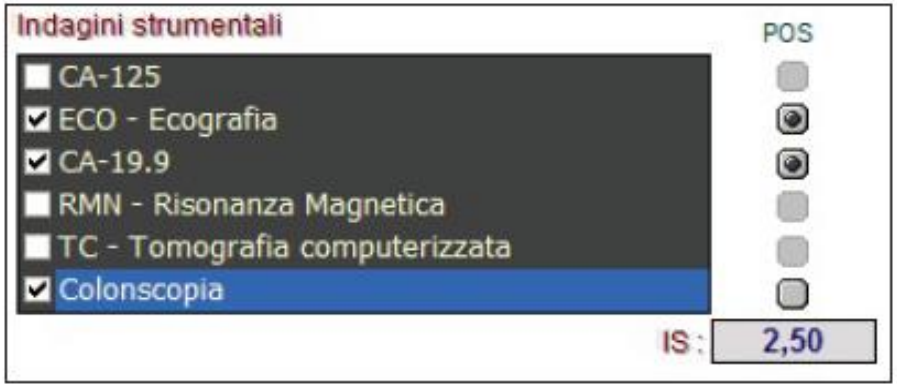
B+C PELVIC EXAMINATION (VM)

- Grade of fixed uterus
- Adnexal cyst(s)
- Grade of Douglas tenderness
- Presence of infiltrating nodule(s)
- Grade of pain at digital exploration

DIAGNOSTIC EVIDENCES (IS)

- Ca 125
- Ultrasound findings
- Ca 19.9
- Magnetic resonance imaging
- X ray/CT scan findings
- Colonscopy findings

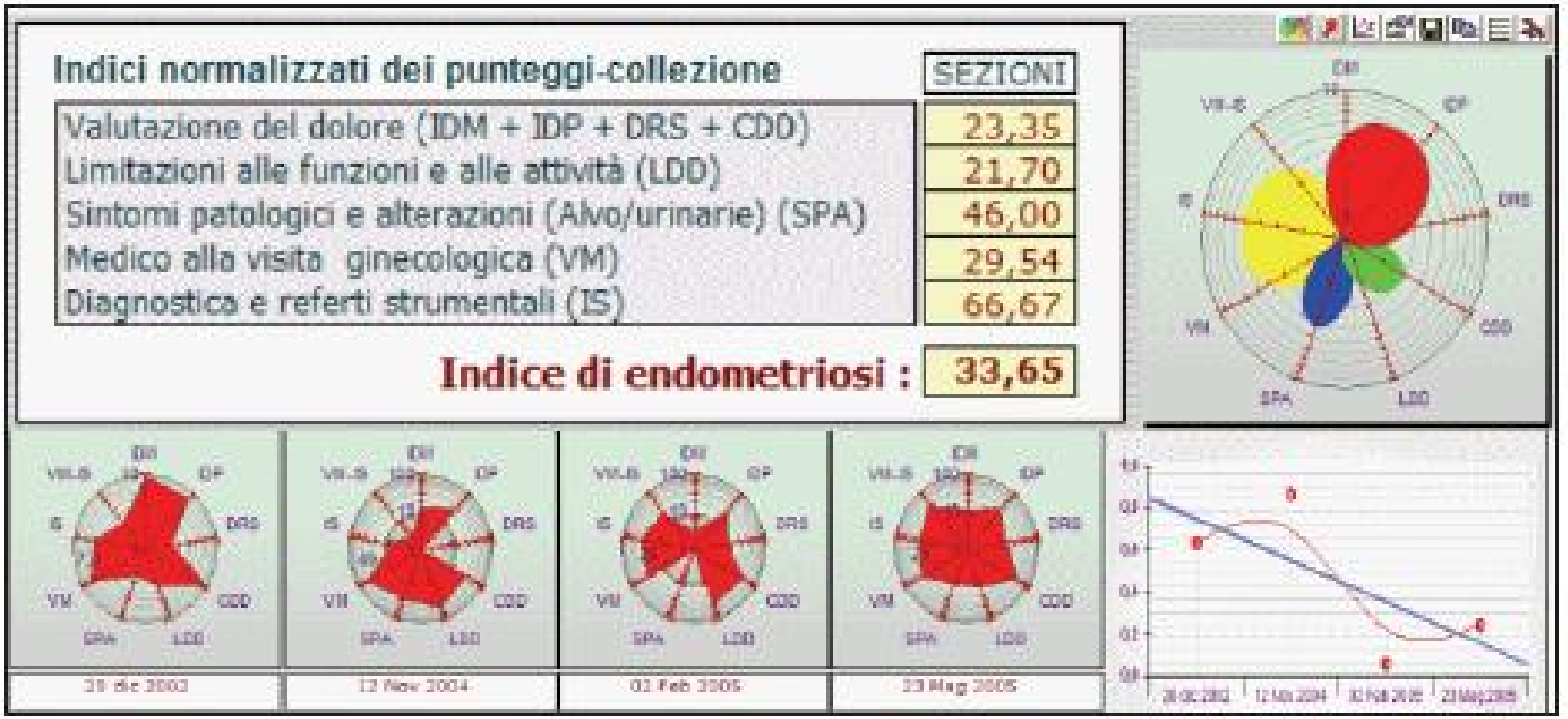
Figure 3 - Binary to weighted scalar score of diagnostic exams
The check-list indicates whether or not an examination was done while the [POS] column on the right will be flagged to signify a positive response. Eventually, pending on the response of the assay collection of indicators, this section IS might assume negative values.



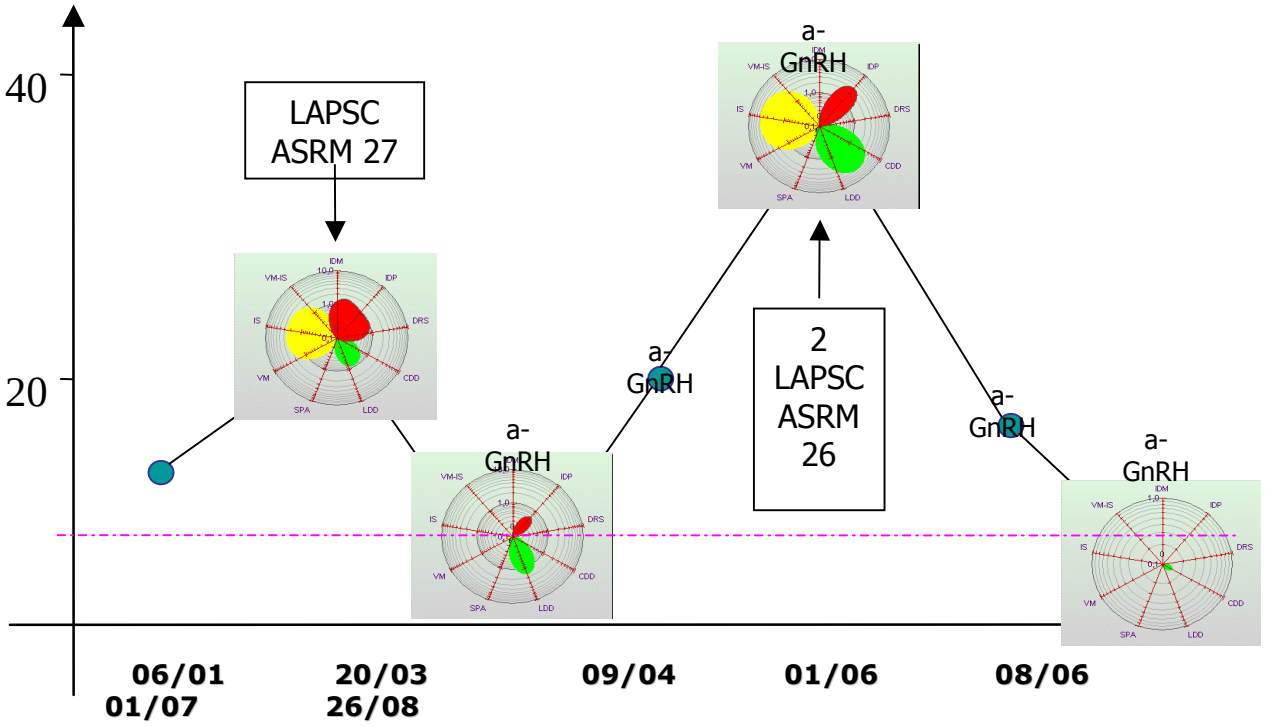
Legend : image report a screen-shot of Italian version of the software prototype

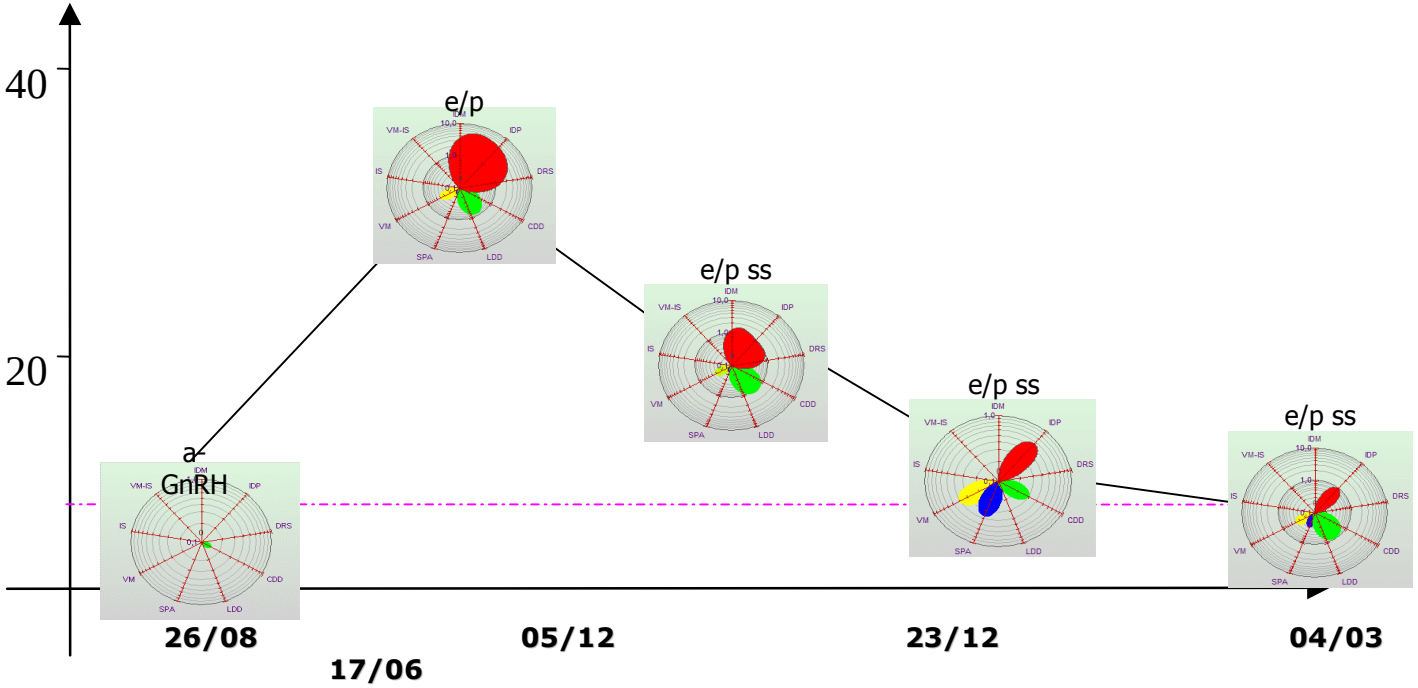
Figure 4 - Negative collection's score of diagnostic exams outcomes
The check-boxes flagged indicate accomplished or available investigation report. The [POS] column shows only one suspicious CA19.9 flag while other result are negative. Because each exam has a relative 2.5 value (2 times and an half fold), this will be summarised when positive and subtracted if negative; this explain why the IS collection score is negative. Note that the colonoscopy was ignored in that was not considered and this account for the case in which a variable assumes the *nil* meaning.

A summary panel of one case follow-ups graphically shows the complete pattern of a case; starting from its first interview the patient is monitored and the endometriosis evolution can be visualised either quantitatively or qualitatively over a periodic outcome EI



Curve is a smooth plot according to polynomial square fitting of values series (red curve). The software can optionally visualise the ordinary linear regression curve (blu line)


40
20
LAPSC
ASRM 27
a-
GnRH
a-
GnRH
2
LAPSC
ASRM
26
a-
GnRH
a-
GnRH
06/01
01/07
20/03
26/08
09/04
01/06
08/06


40
20
e/p
e/p ss
e/p ss
e/p ss
a-
GnRH
26/08
17/06
05/12
23/12
04/03

Endometriosis Index	E.I.
Absence of endometriosis	6.3 (2.4 - 24.8)
Endometriosis pre surgery	21.4 (2.3 - 58.5)
Endometriosis post surgery	3.7 (1.1 - 16.4)

$p < 0.0001$

$p < 0.0001$

Pre-surgical EI values also showed a modest yet significant correlation to the ASRM scores calculated at the time of surgery ($R=0.55$, $p < 0.0001$).

Cumulative distribution of EIs average values		
peritoneal	ovarian	deeply infiltrating
10.6 (2.9-32.6)	19.5 (2.3-40.1)	35.7 (23.8-44.8)

ns

$p < 0.0001$

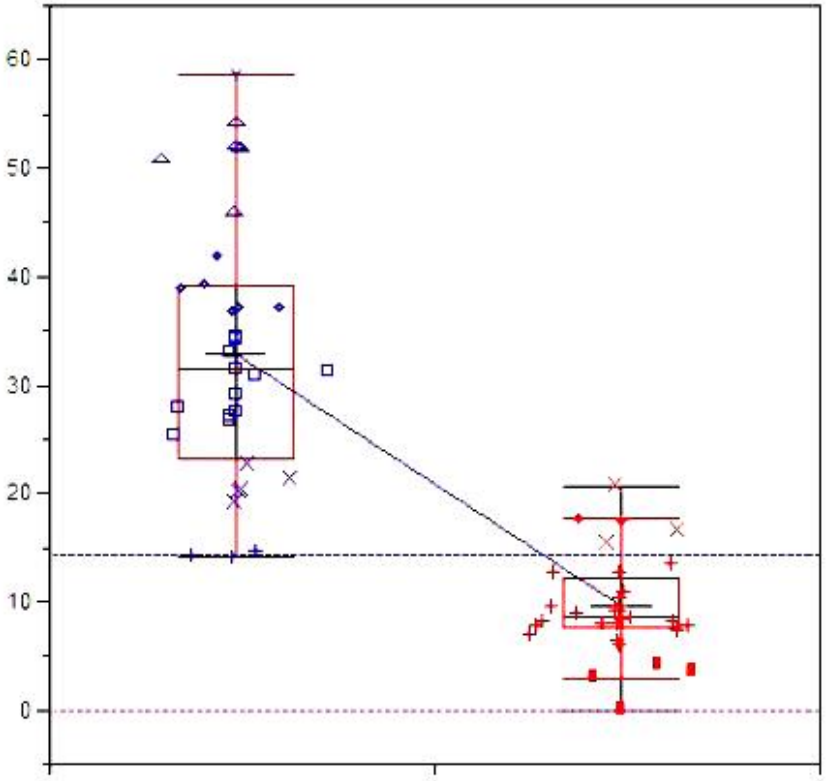


Figure 7 - PCO and PCA on EI and its indicators multi-variate Per/Post samples

A discriminant contribute of the EI indicators was evaluated on the pre/post (black dots and red cross) EI comparison according their bi-dimensional segregation of derivative covariates (second component, 1+2 effects of Eigenvalues).
The chart shows the PCO plot while the bars in the upper right comes from the PCA loadings of second component of Eigen values. Statistics and graphics were achieved by using PAST free software [9].

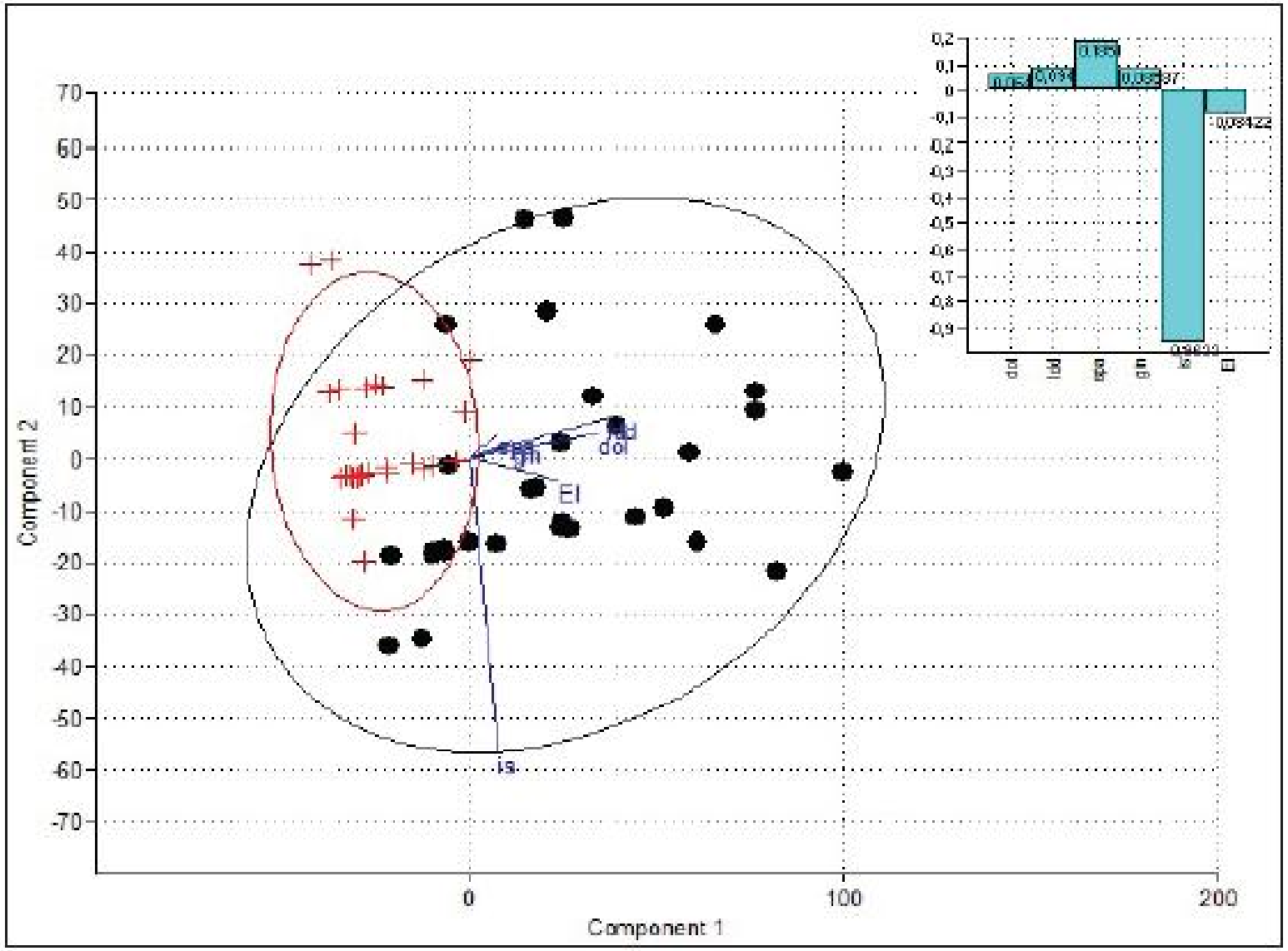


Figure 9 – Two-ways Cluster Analysis dendrogram for EI indicators parentage

Multi-factorial analysis was demonstrated with dendrogram by using the sample studied in Figure 7 (black and Red labels refre to Pre/Post EI values of 35 patients). Pink elliptic area shows the components hierarchy.