Patient (PtGA) and Provider (PrGA) Global Assessment of Disease Activity

General Description

Purpose. The PtGA and PrGA are simple, patient-completed or provider-completed scales, respectively, measuring the overall way RA affects the patient at a point in time.

Content. The PtGA includes a statement such as "Considering all the ways your arthritis affects you mark X on the scale for how well you are doing" with an accompanying statement representing the extremes of the dimension. Both the PtGA and PrGA are classically 10 cm VAS.

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Versions. The PtGA and PrGA are classically anchored, unnumbered 10 cm horizontal lines; however, each may be administered as vertical VAS. VAS may be anchored at the ends or open and may have periodic tick marks at specified intervals. Alternatively an ordered category style VAS may be used. A VAS consisting of 21 circles at 0.5 mm intervals has been shown to be similar to a classic 10 cm line.(36)

Number of items in scale. The PrGA and PtGA are each composed of 1 item.

Subscales. None.

Populations. *Developmental/target.* The VAS was initially designed to be used in measurement of self-assessed pain in RA.(37)

Other uses. Visual analog scales may be used to measure essentially any one-dimensional aspect of health.

ACR Components. Patient global assessment of disease activity or provider global assessment of disease activity.

Administration

Method. Patient self-assessment of global disease activity for PtGA. For PrGA, clinical assessment of global disease activity performed by the provider.

Training. None.

Time to complete. PtGA: Patient: approximately 10 seconds; Provider: approximately 10 seconds if using a ruler, use of a VAS consisting of 21 circles may be 5 seconds faster than a VAS requiring use of a ruler.(36); Laboratory: N/A. PrGA: same as PtGA excluding patient time to complete.

Equipment needed. None.

Availability/cost. There is no cost to use either the PtGA or PrGA.

Scoring

Responses. *Scale.* The PtGA and PrGA each range from 0 to 100 mm, but are often reported from 0 to 10 cm.

Interpretation of scores. The level of disease activity increases with higher scores.

Method of scoring. Using a ruler, measure in mm from the left border of the VAS to the point where the response on the line is marked. VAS consisting of circles may be scored by visual inspection without use of a ruler.

Training to interpret: None.

Norms available. Proposed definitions of low disease activity are PtGA ≤ 2.0 (scale 0-10) and PrGA ≤ 1.5 (scale 0-10).(38)

Psychometric Information

Reliability.

Test-retest. Test-retest reliability for the PtGA based on 122 patients tested on an anchored horizontal 10 cm scale with vertical markers every 10 mm demonstrated an ICC of 0.702.(39) A second study of 24 patients demonstrated an ICC of 0.75 for PtGA.(40) Test-retest reliability for the PrGA based on 166 patient encounters on a horizontal 10 cm scale without vertical markers or anchors demonstrated an ICC for test-retest reliability of 0.961.(39) A study of 22 patients demonstrated kappa of 0.58 and ICC of 0.44, for the PtGA while the PrGA demonstrated kappa of 0.79 and ICC of 0.48.(41)

Validity.

Content. Both the PtGA and PrGA have historically been used to measure disease in RA. Both the PtGA and PrGA are ACR core set measures for improvement in RA disease activity. The PtGA is incorporated into many composite indices measuring RA disease activity including the ACR Core Data set, DAS, and DAS28, CDAI, and PDAS2; the PrGA is also incorporated into composite indices including the SDAI and CDAI. Most patients evaluate their global assessment of RA disease activity higher than providers.(42, 43) Interpretation of PrGA and ESR have been shown

to demonstrate the least amount of variance among providers as compared to the remaining items in the core set.(43)

Criterion. Higher PtGA values are associated with poorer radiographic outcomes, however Larsen scores have not shown significant association (P=0.26)(43) A composite score (Global Assessment Scale = GAS) including self-reported pain, functional assessment (mHAQ) and patient-generated 28-tender joint count was concordant with PrGA in 68% of patients with RA.(44)

Concurrent. Both the PtGA and PrGA have been shown to correlate similarly with radiographic scores as compared to other core set measures, with higher values associated with poorer outcomes, however association with all core set measures was found to be nonsignificant (P=0.26).(43) The level of agreement between DAS scores and PrGA was 49% and between PrGA and ESR only 17%.(45) Significant correlation between initial and longitudinal analysis between PtGA and PrGA has been shown.(46)

Convergent. In clinical trials the PtGA and PrGA have demonstrated similar change in response to therapy.(47, 48) In the measurement of pain, vertical and horizontal VAS have been compared with good correlation (0.99) between the 2 scales; however scores from horizontal scales tend to be slightly lower than those from vertical scales 10.85±0.63 vs. 11.05±0.65.(49) Paper and computer-based versions of the PtGA are highly correlated (ICC 0.911).(50) In one study of 24 patients the 95%

limits of agreement for the smallest detectable difference in PtGA ranged between -41 and 32, suggesting poor reliability as compared to multi-item measures of physical function.(40)

Construct. Duration of morning stiffness does not correlate with PtGA(51) and when compared to the DAS28, the PtGA was 41% more likely to be concordant than discordant.(45) Education may affect patient ratings of disease activity,(42) comorbid disease increases the PtGA,(24) and support groups may decrease PtGA.(52) In a study of 24 patients the PrGA correlated with the PtGA and pain scores (r = 0.2-0.7), with the HAQ (r = 0.3-0.7), and with ESR (r = 0.2-0.4).(53) In clinical trials the PtGA and PrGA have demonstrated similar change in response to therapy.(47, 48) Significant correlation between initial and longitudinal analysis between PtGA and PrGA has been demonstrated.(46) Initial PrGA has been shown to correlate with HAQ 24 months later; however significant correlation with radiologic outcomes has not been demonstrated.(54) Duration of morning stiffness does not correlate with PrGA.(51)

Responsiveness to change. The smallest detectable difference for the PtGA is large as compared to multi-item measures of physical and psychological function and to radiologic measures,(40) suggesting poor responsiveness to change. However, PrGA, PtGA, pain scores, and the HAQ have been shown more sensitive to change than laboratory measures.(53) The PrGA correlates with changes in pain scores, morning stiffness, and ACR functional score, but not with

physician swollen joint counts.(46) One study found that a worsening in PtGA corresponds to a median DAS28 increase of +0.55 (+16.5%) and an improvement in PtGA corresponds to a median DAS28 reduction of -0.82 (16.0%)($p<0.001$).(31)

Comments and Critique

The PtGA and PrGA are practical for use in the clinic as little to no training of staff or patients is required and each may be quickly incorporated into the busy clinical setting. Use of a VAS consisting of 21 circles may be slightly faster than a VAS requiring use of a ruler(36) and overcomes the requirement to carry a ruler which may be cumbersome. As the PtGA and PrGA are overall measures of patient wellbeing the effects of comorbid illness(44) and fixed damage in addition to current RA disease activity may influence the score. PtGA may be more a measure of quality of life than of disease activity as it is decreased after participation in support groups(52) and is influenced by patient education.(42) Although the PtGA is a component of many composite measures, when used alone it lacks face validity as no provider-derived data or laboratory parameters are included. Additionally, the PtGA has been shown to correlate poorly with changes in the DAS28(45)(55)and agreement between PtGA and PrGA is low (kappa = 0.166, $P<0.001$) indicating patient perceptions of disease activity may be incongruent with those of providers.(41) The PrGA is a component of many composite measures and by itself may encompass all that is known by a provider about a patient's condition including assessment of joint swelling and pain and interpretation of laboratory values.