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Title

Normative data and differences in the use of the Amputee Mobility Predictor (AMP) in the assignment of K-Level for Lower Limb Amputees.

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Summary

A retrospective study from four US clinics examined AMP scores obtained during lower limb fittings. The results provide reference data by amputation level and mobility grade (K-Level), but also reveal differences between sites in how the AMP is used in the assignment of K-Level.

Introduction/ basics

The Amputee Mobility Predictor (AMP) was developed as a performance-based outcome measure to assess functional capabilities and mobility, and to assist in Medicare Functional Level (K-level) assignment (Gailey 2002). Available reference data assists in AMP score interpretation, but no clear cutoff scores between K-levels exist (Gailey 2002), and applying un-verified cutoff scores is cautioned against (Spaan 2017, Dillon 2018). For recent amputees being fit with their first prosthesis, several studies have found limitations to relying on un-verified cutoff scores for interpreting AMPnoPRO results (Spaan 2017, Kaluf 2019, Andrews 2017). A retrospective chart review was conducted to examine AMP scores obtained during routine lower limb fittings to establish reference data and to assess the relationship between the AMP scores and the assignment of K-Levels.

Material method; implementation/ process

Outcome measures routinely administered at four clinic sites included the Amputee Mobility Predictor (AMPPRO) and the Amputee Mobility Predictor used without a prosthesis (AMPnoPRO). Outcomes were assessed at baseline, initial follow up typically 2-3 weeks after the fitting, 6 months, and annually. IRB Approval was obtained for 4 participating sites for a retrospective chart review along with a waiver of informed consent. Data were obtained from an export from the Electronic Health Record (OPIE) from each site to compare AMP scores with

the assigned K-Level. Bilateral amputees were excluded from the analysis along with partial foot toe amputations.

Results

Clinical outcomes were obtained from 6953 subjects fitted with a lower limb prosthesis January 2010 through October 2020 at four different prosthetic clinics in the United States. Table 1 shows the number of patients with valid AMPPRO or AMPnoPRO scores for each site by K-Level and amputation level. The percentage of lower limb prosthetic patients with at least one valid AMP scores varied from 11% (site 3) to 82% (site 4), with the percentage at each site similar between transtibial (TT) and transfemoral (TF) amputees. Table 2 shows the average AMP scores by K-Level and amputation level. Figure 4 illustrates differences in the distribution of AMP scores by K-Level assignment for each site.

Discussion/ conclusion; conclusion for the practice

Discussion

While the use of the AMP in routine clinical practice was common for all four sites, differences in the administration of the test were apparent. Site 3 limited the AMP assessments to K3 patients, but overall used the test sparingly. Sites 1 and 2 administered the AMP scores to roughly 1/3 of patients and site 4 to over 80%. For all sites except site 3, AMP scores were about twice as likely to be obtained in K3 patients as for K2 patients, which is consistent with the need to justify K3 component selection to US payers.

There were clear differences in the distribution of AMP scores by K-Level for each site. Sites 1 and 4 had a wide dispersion of AMP scores by K-Level, with a significant proportion of subjects assigned to K-Levels above the un-verified AMP score "cut-offs." Sites 2 and 3, however, were more conservative in the K-Level assignments relative to the AMP scores, with much tighter dispersions. Differences in these distributions may reflect beliefs by practitioners regarding the role of the AMP in assigning K-Level to a patient.

Conclusion

The use of the AMP in routine clinical practice is feasible for supporting justification of K-level in lower prosthetics. Differences in the distribution of AMP scores may reflect differences in the

way the AMP is used to support K-Level assignment. More research is warranted to investigate how the AMP scores are being used by clinicians and the application of AMP score "cutoffs."

References

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Image: Table 1. % Patients with AMP Scores and Distribution of K-Level Assignment by Site_266_266.jpg

Number, % of Patients	Site 1	Site 2	Site 3	Site 4	Overall
TF/KD	1236	308	215	305	2064
AMP Scores	340	104	22	261	727
% Patients	28%	34%	10%	86%	35%
TT/Symes	2406	1081	370	670	4527
AMP Scores	716	363	38	520	1637
% Patients	30%	34%	10%	78%	36%
K0	0%	0%	0%	0%	0%
K1	7%	7%	0%	2%	5%
K2	29%	43%	7%	32%	28%
K3	55%	47%	88%	57%	58%

Image: Table 2. Mean AMP Scores by Amputation Level and K-Level_267_267.jpg

Mean AMPPRO Score	K-Level					
Amputation Level	K0	K1	K2	K3	K4	Overall
TF/KD	--	18.79 ± 7.17 n=19	29.78 ± 6.19 n=117	39.18 ± 4.31 n=502	43.39 ± 1.99 n=116	37.86 ± 6.73 n=754
TT/Symes	13.00 ± 1.00 n=3	22.65 ± 7.11 n=49	31.05 ± 5.78 n=388	40.33 ± 3.82 n=1288	44.50 ± 1.53 n=391	38.94 ± 6.49 n=2099
Overall	13.00 ± 1.00 n=3	21.57 ± 7.28 n=68	30.75 ± 5.89 n=505	40.01 ± 4.00 n=1770	44.24 ± 1.71 n=507	38.65 ± 6.57 n=2853

Image: Figure 1_Distribution of AMP Scores_v2_268_268.jpg

