

VASCULAR ACCESS (VA) TRIAGE AND CLINICAL EVENTS IN HAEMODIALYSIS (HD).

Muci M.L. 1, Tartaglione L. 1, Rotondi.S1, Carbone L. 1, and Mazzaferro S1.
1Nephrology and Dialysis Unit, ICOT hospital, Polo Pontino Sapienza University of Rome.

Introduction

- Vascular access type (AVF vs CVC) is known to affect morbidity and mortality in HD patients.
- Besides VA type, also its performance may be relevant but it is not evaluated routinely.
- We developed an empirical system of VA triage to be representative of its average monthly performance.
- We report here on the relationship between this VA triage and clinical events.

Methods

- In all patients attending our Unit, nurses recorded weights, blood pressure, heart rate, blood flows, VA pressures, symptoms and clots of each haemodialysis session and, once monthly, KT/V (Figure 1).
- Pathologic values of these parameters contribute to generate a score that, according to internal thresholds, results in a VA triage (green, yellow, red. Figure 1).
- Between Jan/1th/2014 and Dec/31th/2015 we recorded all clinical events (hospital admissions and deaths) of those patients whose VA had been triaged for at least 3 consecutive months.
- For the purpose of this study we then calculated the recorded average triage of each patient during his follow-up. AVF and CVC triage are calculated with different score systems.

Results

- We had records of 111 patients, pertinent to 62 AVF and 49 CVC, followed-up for 18 ± 7 months.
- Hospital admissions were 170 and lasted 16 ± 26 days. Twelve patients died.
- Prevalence of events was greater in CVC as compared to AVF patients (75% vs 51%, $p < .02$).
- On the basis of VA triage we recognized three groups of patients: green, yellow and red (Table 1).
- The prevalence of events was different in these groups: green = 36%, yellow = 68% and red = 100% ($p < 0.001$),
- We confirmed a different prevalence of events in the subgroup with AVF (green = 30%, yellow = 62%, red = 100%; $p < 0.01$) but not in patients with CVC.
- Notably, age, dialysis duration and diabetes were not different among the three groups. (Figure2)

Discussion and conclusion

- VA performance, whose clinical relevance is undisputed, is mostly evaluated when malfunctioning or, at the best, through periodic Doppler assessment.
- We developed here a system that records the variability of the performance of VA and generates a triage that might be helpful to attract the attention of shifting nurses and physicians on a limping access.
- Records in our population confirmed that VA type is a risk factor for morbidity in HD patients.
- In addition, we had evidence that also the performance of VA was associated with a different risk of clinical events in patients on hemodialysis.
- Therefore, a triage system like the one we used, evaluating qualitative VA performance, could be regarded as a possible sensor of VA adequacy and be helpful to recognize patients at increased clinical risk.
- In particular our AV triage seems to be more sensitive for AVF than for CVC.

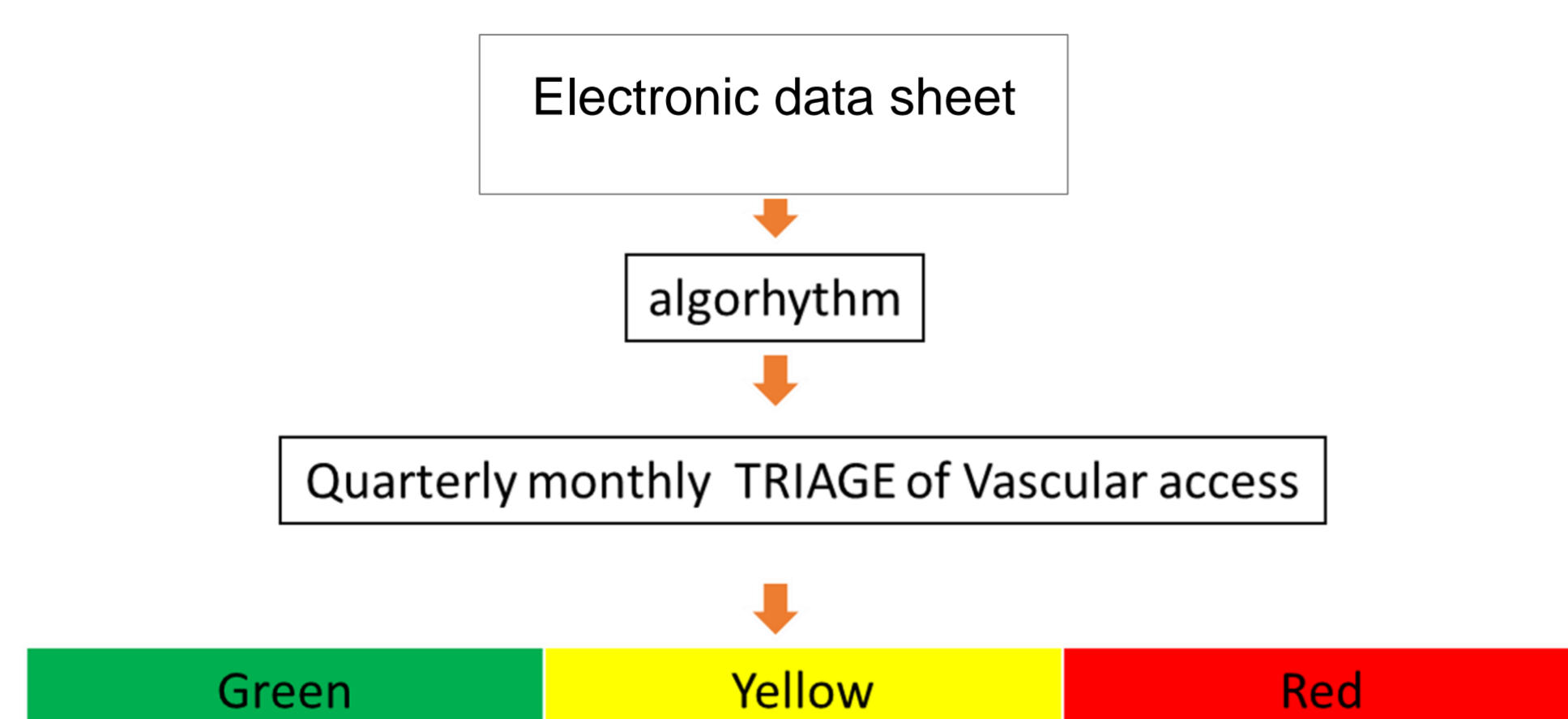


Fig. 1 Simplified example of the VA triage process

| | AV Triage | | | p< | |
|----------------------|------------------|-----------|----------|----------|----------|
| | Green | Yellow | Red | | |
| Cases, n° | 50 | 57 | 4 | | |
| Age, y | 68±13 | 71± 11,7 | 73±11,6 | n.s.(^) | |
| Dialysis age, months | 21±19 | 20,3±31,5 | 18±28,7 | n.s. (^) | |
| Diabetes, n° | 16 (32%) | 19 (33%) | 0 | n.s. (*) | |
| AVF/CVC, n° | 23/27 | 37/20 | 2/2 | | |
| Patients with events | AVF-CVC n° (%) | 18 (36%) | 39 (68%) | 4 (100%) | <.001(*) |
| | AVF only, n° (%) | 7 (30%) | 23 (62%) | 2 (100%) | <.02(*) |
| | CVC only, n° (%) | 11 (41%) | 16 (80%) | 2 (100%) | n.s.(*) |

Events = admissions/deaths. Data are mean ± SD;(^) ANOVA; (*) X²;

Fig. 2. Main clinical parameters of our population separated according to their average VA triage