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LETTER TO THE EDITOR

Several issues on the article: patient-reported quality of life and pain after permissive weight bearing in surgically treated trauma patients with tibial plateau fractures: a retrospective cohort study

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To the Editor,

We read with great interest the paper by Kalmet PHS and colleagues [1] retrospectively comparing permissive weight bearing (PWB) with restricted weight bearing (RWB) after surgically treated tibial plateau fractures in terms of time to full weight bearing, quality of life, pain, and complications. The study concluded that PWB after tibial plateau fracture surgery (TPFS) was safe and reduced the time to full weight bearing with no significant differences in quality of life, pain, or complication rates. Their work, strongly significant both in theory and clinically, adds new clinical evidence for early weight bearing protocols after TPFS. However, there are some issues in this study which we would like to communicate to the authors.

(1) Regarding baseline characteristics

The baseline characteristics of patients (Table 1 in the original article) are insufficient and some important data, such as the body mass index (BMI), intra-articular lesions and knee function before fracture, are ignored.

Dinçel reported that BMI was negatively correlated with functional knee scores after TPFS, with low BMI patients performing better [2]. Cecen GS also revealed that an increase in BMI brought about higher complication rates after TPFS [3]. These two studies indicated that BMI might be a risk factor for clinical results in TPFS. Therefore, BMI should be evaluated when the PWB protocol is implemented after TPFS. It may also be necessary to adjust the weight bearing program for patients with different BMI. In addition, tibial plateau fractures are prone to intra-articular lesions (meniscal, anterior tibial spine, ligament, or cartilage), certainly aggravating the injury and may lead to worse knee functional scores after TPFS [4–6]. Therefore, identification and timely treatment of intra-articular lesions are particularly vital in TPFS. Significant differences in knee function before fracture may lead to different clinical outcomes after TPFS as well.

We believe it is necessary to assess the above three factors in the study conducted by Kalmet PHS et al. [1]. Unfortunately, they were not, to some extent, weakening the reliability of the results of this study.

(2) Regarding SF-12 and VAS

91 patients were retrospectively enrolled in this study (31 in the PWB group and 60 in the RWB group). Quality of life and pain were assessed by the SF-12 and the VAS score, respectively (Table 2 in the original article). However, the time when the SF-12 and VAS questionnaires were administered after TPFS was not consistent with both groups, that is to say, the SF-12 and VAS scores in the two groups were obtained at different times other than at similar time points after TPFS (7.6 years in the RWB group vs 4.6 years in the PWB group, $p < 0.01$). Therefore, the comparability of the SF-12 and VAS scores between the two groups at different time points is questionable, which might have an impact on the veracity of the study.

In addition, the difference in the response rate of the SF-12 and VAS questionnaires between the two groups was not significantly different (80.6% vs 68.3%, 25 in the

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PWB group and 41 in the RWB group, $p = 0.32$) (Table 2 in the original article). Nonetheless, attention may be needed here. Although the baseline characteristics of all patients enrolled in this study (31 in the PWB group and 60 in the PWB group) were compared (Table 1 in the original article), they could not completely substitute for the baseline characteristics of the patients (25 in the PWB group and 41 in the PWB group) from whom the SF-12 and VAS questionnaires were obtained (Table 2 in the original article). Unfortunately, the authors did not access the baseline characteristics of these patients (25 in the PWB group and 41 in the PWB group), raising our concerns about the accuracy of the result: there were no significant differences in either the SF-12 or VAS score between the PWB group and the RWB group. We believe it is reasonable to compare the baseline characteristics of patients who responded to the questionnaires (25 in the PWB group and 41 in the PWB group) (Table 2 in the original article).

(3) Regarding time to full weight bearing and fracture types

Arnold JB reported that time to full weight bearing had a positive correlation with the proportion of Schatzker type IV–VI, revealing that a longer time might be needed to achieve full weight bearing after TPFS for patients with more severe fracture types [6]. Similarly, in the study by Kalmet, statistical analysis revealed that Schatzker types were independent predictors of late full weight bearing (>12 weeks, $p < 0.05$). Although no significant differences in full weight bearing time after TPFS were found between the fracture types in the PWB group (Schatzker type I–III vs Schatzker type IV–VI, $p = 0.10$), time to full weight bearing in Schatzker type IV–VI patients was higher than that in Schatzker type I–III patients (16.5 vs 8.3 weeks, $p = 0.10$) (Table 4 in the original article). We believe that the limited sample might be the main reason for this results.

To conclude, an appropriate rehabilitation protocol after TPFS is particularly vital for the recovery of knee function. Although some recent studies revealed that early post-operative weight bearing was safe and benefited patients without complications, such as loss of fixation or articular collapse [7, 8], there was still a lack of compelling medical-based evidence which should be evaluated in further studies.

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Compliance with ethical standards

Conflict of interest All authors declare that there is no conflict of interest.

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