Immediate implant placement has been advocated as a protocol that can reduce the treatment time as the socket healing and implant osseointegration occur concurrently. Immediate implant placement can further be combined with immediate restoration protocol, which provides the patient with a fixed restoration immediately following tooth extraction. Immediate implant placement, also known as Type I placement, is defined as the placement of an implant immediately following tooth extraction, while immediate restoration has been defined as any restoration placed within 48 hours of implant insertion but with no contact with the opposite dentition in both centric and eccentric occlusion.\(^1\)\(^,\)\(^2\)

A comprehensive systematic review was conducted to evaluate the soft tissue and aesthetic outcomes of single tooth immediate implant placement and restoration (IPR) in the maxillary anterior region. The initial search strategy yielded a total of 3148 studies. Only 19 studies presenting a data on a total of 472 implants were placed and restored immediately in the maxillary aesthetic zone selected. The following parameters were investigated:

1. **Gingival Biotype**: It has been proposed that the patient’s gingival biotype impacts on the likelihood of achieving a successful aesthetic outcome. Indeed, a thick biotype was a prerequisite for patient inclusion in a few studies. However, results from this review failed to find any significant advantage of thick tissue biotype. It should be noted that the number of cases compared were limited and included studies had considerable inherent heterogeneity.\(^3\)\(^,\)\(^4\)

2. **Surgical Access**: The choice of whether a flap or flapless approach is employed did not appear to influence the final outcome. Therefore, it is still unclear whether the choice of utilising a surgical flap or a flapless approach influences the final outcome.\(^5\)\(^,\)\(^6\)

3. **Bone Augmentation Procedures**: From the limited data available it was not possible to determine whether grafting between the implant and bone had any effect on the soft tissue levels around implants placed using the IPR protocol.\(^7\)\(^-\)\(^10\)

4. **Connective Tissue Graft (CTG)**: Did not show any significant advantage in improving soft tissue outcomes. Although it has been used to manage advanced recession cases, this procedure has its own limitations with necrosis of the graft potentially leading to inferior aesthetic outcomes, and hence CTG can’t be recommended as routine procedure with the IPR technique.\(^11\)\(^,\)\(^12\)

5. **Mid-facial Recession**: Few studies provided data on advanced mid-facial recession (>1 mm) of which two had a frequency of >10%. Therefore, sensible patient selection criteria are followed, especially in relation to the integrity of the buccal socket wall. It is noteworthy that various techniques like standardised and non-standardised photographs, direct clinical measurements on the patient, and dental casts were used in different studies which could have affected the results. It is difficult to standardise any specific method as it is a subjective measurement.\(^13\)\(^,\)\(^14\)

6. **Papillary Recession**: Were limited after ≥1 year of follow-up. Interestingly, a gain in the level of interdental papillae was seen after definitive crown placement suggesting a papillary rebound. Studies with follow-ups longer than 1 year showed a tendency for the papillae to regrow improving the overall aesthetics. The finding of papillary rebound should be interpreted carefully as it is based on a limited number of heterogeneous studies. Nonetheless, it is an interesting finding which needs further research in the form of long term clinical trials.\(^15\)\(^,\)\(^16\)

7. **Patient Assessment**: Only a very limited number of studies reported on patient centered parameters; this is an outcome measure that requires further investigation.\(^17\)\(^-\)\(^19\)

8. **Possible Complications**: There was a lack of technical and biological complications reporting with IPR technique.

**CONCLUSION**: Considerable heterogeneity was evident when comparing the different studies included in this review. Despite the relatively short time span (2003-2015) in which most of these studies were performed, the treatment procedures and materials have changed considerably, leading to a large variance in the treatment protocols that were utilised. Longer follow up prospective, and ideally randomised clinical trials, are necessary to determine the effect of local and surgical factors on the soft tissue and aesthetic outcomes before IPR protocol become a routine procedure.

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