Incremental Peritoneal Dialysis – Comment on the 8th GPDP-SIN 2022 Census data

Census

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Of the dialysis methods currently available, peritoneal dialysis (PD) is the one that lends itself most readily to "customization" of treatment as regards both the composition of the dialysis solution and the duration and volumes used.

Besides the classic "full dose" method defined as 3-4 manual exchanges/day or more than 4 night sessions/week, for about two decades PD has also been prescribed with an incremental dialysis (IPD) protocol providing for treatment with a lower than standard dialysis dose which is subsequently increased as the residual renal function (RRF) deteriorates [1–3].

As the IPD prescription is based on a lower dialysis dose than the norm, the combination between RRF and peritoneal clearance must be taken into account in order to achieve clearance targets. So a correct IPD prescription must offset the gradual reduction in RRF, or any appearance of uremic symptoms, by increasing the number of exchanges and/or dialysis volumes as well as treatment times [4–7].

In the event of adequate RRF, dialysis adequacy targets can be achieved using the incremental method without running the risk of underdialysis. Furthermore, IPD can benefit patients and society due to a series of elements that can have a positive effect on everyday life conditions:

1. Fewer dialysis procedures allow patients on IPD to feel less anxious about the method and to enjoy a better quality of life. Moreover, the lower intraperitoneal volumes reduce abdominal discomfort, improving appetite [5].
2. A feature of IPD is its use of lower amounts of solutions and material compared to full dose dialysis, meaning reduced costs [8].
3. Fewer dialysis bags means potential environmental benefits with the reduction in the use of water and plastic [9].
4. Reduced use of dialysis solutions means less systemic resorption of carbohydrates, and as a result a better metabolic profile [4,9].
5. The risk of peritonitis can potentially be reduced in IPD due to the reduced number of connections [4,7,10].
6. The reduced exposure of the peritoneum to dialysis solutions – and as a result to high concentrations of glucose and its degradation products – can lead to improved preservation of the peritoneal membrane, and therefore longer method survival [11, 12].

In Italy, these observations have been confirmed by a significant increase in the use of IPD, as documented by the most recent data from the Italian Society of Nephrology Peritoneal Dialysis Project Group Census. Indeed, a further increase in IPD in dialysis centers compared to previous

years was documented in 2022: since 2005 the percentage of patients on PD who have used the incremental method has risen from 11.9% to 35.3% (Table I).

Probably the most convincing data however, which strongly suggests the taking of a positive stance by the Italian nephrology community towards IPD, is provided by the gradual increase shown in the percentage of dialysis Centers which have undertaken this method: up from 29% in 2005 to 63% in 2022 (Figure 1)! Even in the absence of highly significant studies therefore, everyday experience and the clinical results observed in the Italian dialysis population are confirming the effectiveness of IPD in providing adequate clearance along with a good quality of life.

Other significant results emerging from the Census which can also be correlated with the use of IPD are:

- the duration of PD (from 32.6 months in 2005 to 31.6 months in 2022) and overall drop-out have not changed
- the incidence of peritonitis and drop-out due to peritonitis have dropped significantly

YEAR	%
2005	11,9
2008	18,3
2010	22,8
2012	28,8
2014	27,5
2016	32,5
2019	31,4
2022	35,3

Table I: Percentage of patients who start on Incremental Peritoneal Dialysis in Italy.

Conclusions

IPD has been used all over the world for around two decades, and although large-scale randomized studies are still few and far between current scientific evidence suggests that it is as safe as full-dose PD and can be maintained for at least one year. Furthermore, some of the studies have suggested that as well as the potential benefits described above IPD is also better at preserving the residual renal function. Nephrologists must be aware, however, of the need for close supervision of patients and their clinical, metabolic, and dialysis parameters in order to avoid potential complications associated with any delay in the correct adjustment of the dialysis dose [13].

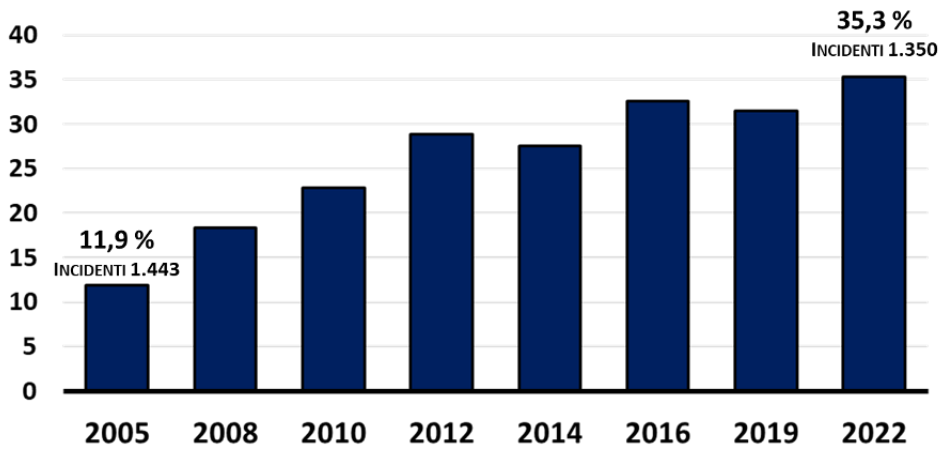

Figure 1: Percentage of Italian dialysis Centers using Incremental Peritoneal Dialysis.

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