

Microalbuminuria in type 1 diabetes – Audit of management of children and adolescents in a single diabetes centre

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Background

There are international guidelines on screening for Microalbuminuria (MA) in children with Type1 Diabetes Mellitus (T1DM). But the National Paediatric Diabetic Audit, UK suggests that screening is missed in over 50% of cases. Further, there is little data on the management and natural course of MA in children by frontline units.

Objective

To describe the prevalence, management and natural course of MA in children and adolescents with T1DM.

Methods-

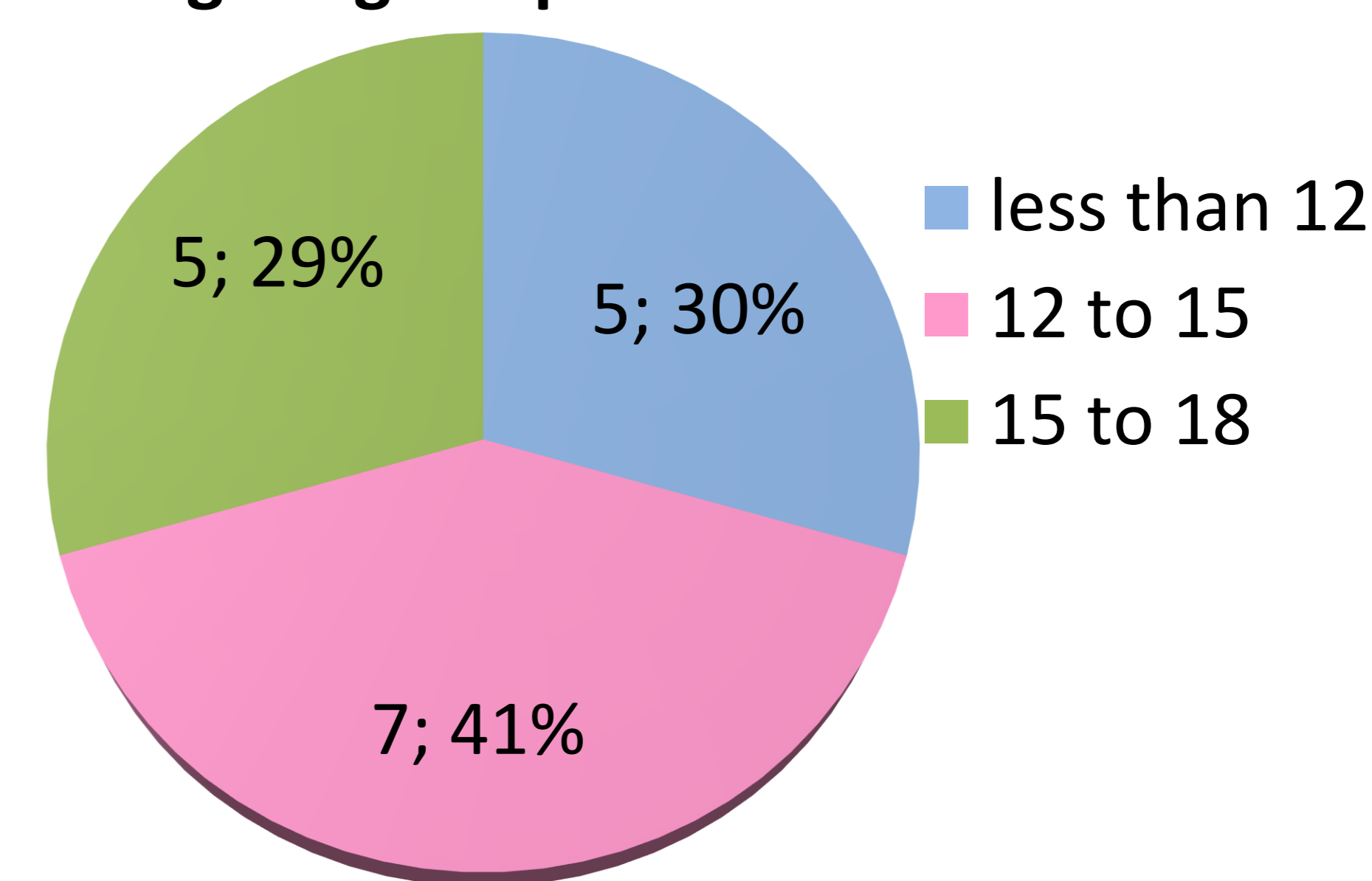
All patients with T1DM noted to have MA between April 2013 and April 2015 were included in the study. Data on demographic factors and laboratory results at onset of MA and during the study period was collected retrospectively from electronic records and databases. MA was diagnosed by Albumin Creatinine Ratio(ACR) of more than 3mg/mol on a random urine sample

Results

77 out of 185(9.3%) children with T1DM were noted to have MA during the study period. The characteristics are summarised in table and fig 1,2 and 3.

	n	age in years	Age Range(years)	Mean HbA1C (mmol/mol)	Mean BM(kg/m2)I
MA1	17	13.8+_3.1	6.7-18.5	85.8(45.4-125.1)	18.8(14-27.1)
MA2	11	14.7+_2.3	10.7-18.9	81.4(39.9- 129.5)	20(14.9-29.4)
MA3	5	15.1+_1.55	13.0-16.8	65(41-79.2)	21.2(16.1-30.0)
MA4	4	17+_1.5	4.1-16.7	66.1(50.8-83.6)	25(19.1-30.5)
MA5	4	17.1+_1.25	15.9-18.9	65(41-85.8)	21.4(17.7-24.3)
MA6	1	17.8		80.3	21.5

Fig.1.Age of presentation of MA



Mean duration from diagnosis of T1DM to MA was 5.9years (0.8-15.6)

ACR normalised in 8(50%) at a mean follow up of 4.3 years, was intermittent in 3(16.7%) and persisted in 5(27.8%).Fig 3.

Outcome according to age and duration of diabetes is summarised in fig 4 and 5.

Of those which resolved the mean duration from diagnosis to disappearance was 2.65years.

Frequency of retesting varied between 4 months to 3 years.

One third achieved an HbA1C <58.5mmol/mol.

No one developed macroalbuminuria, or required treatment.

No one had hypertension or significant lipid abnormalities.

Fig 2.Duration of diabetes before MA

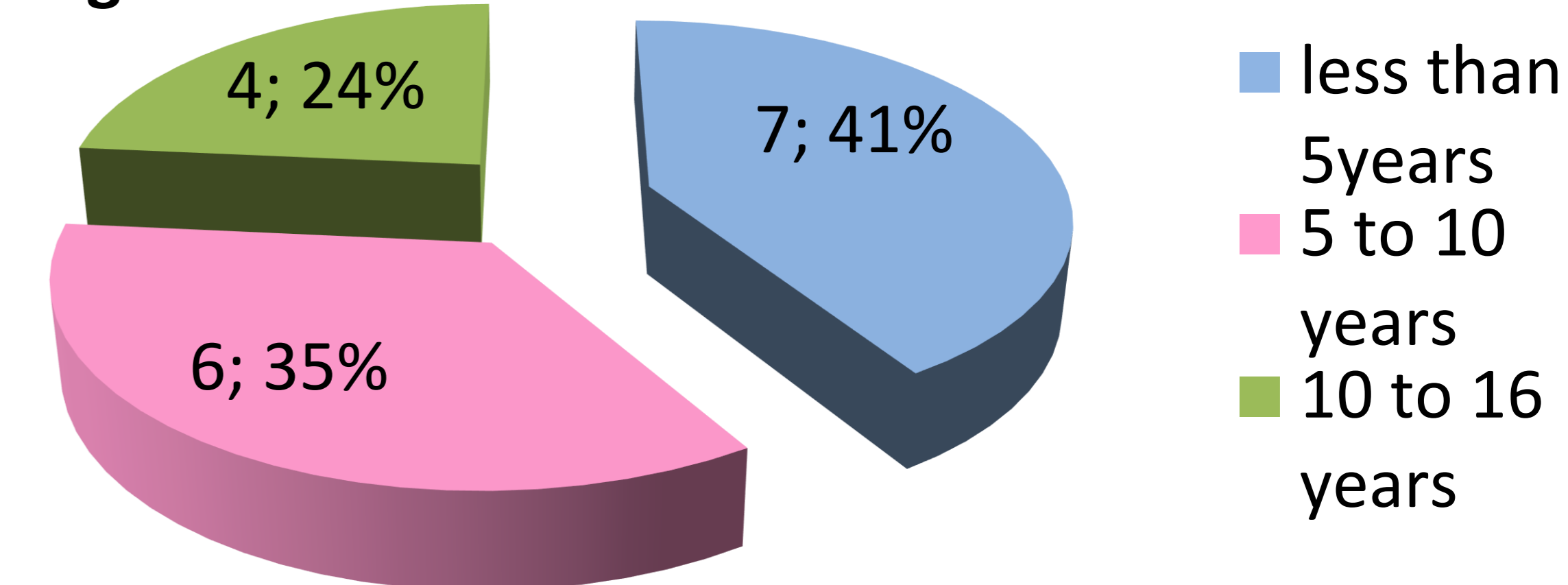


Fig3.Evolution of MA

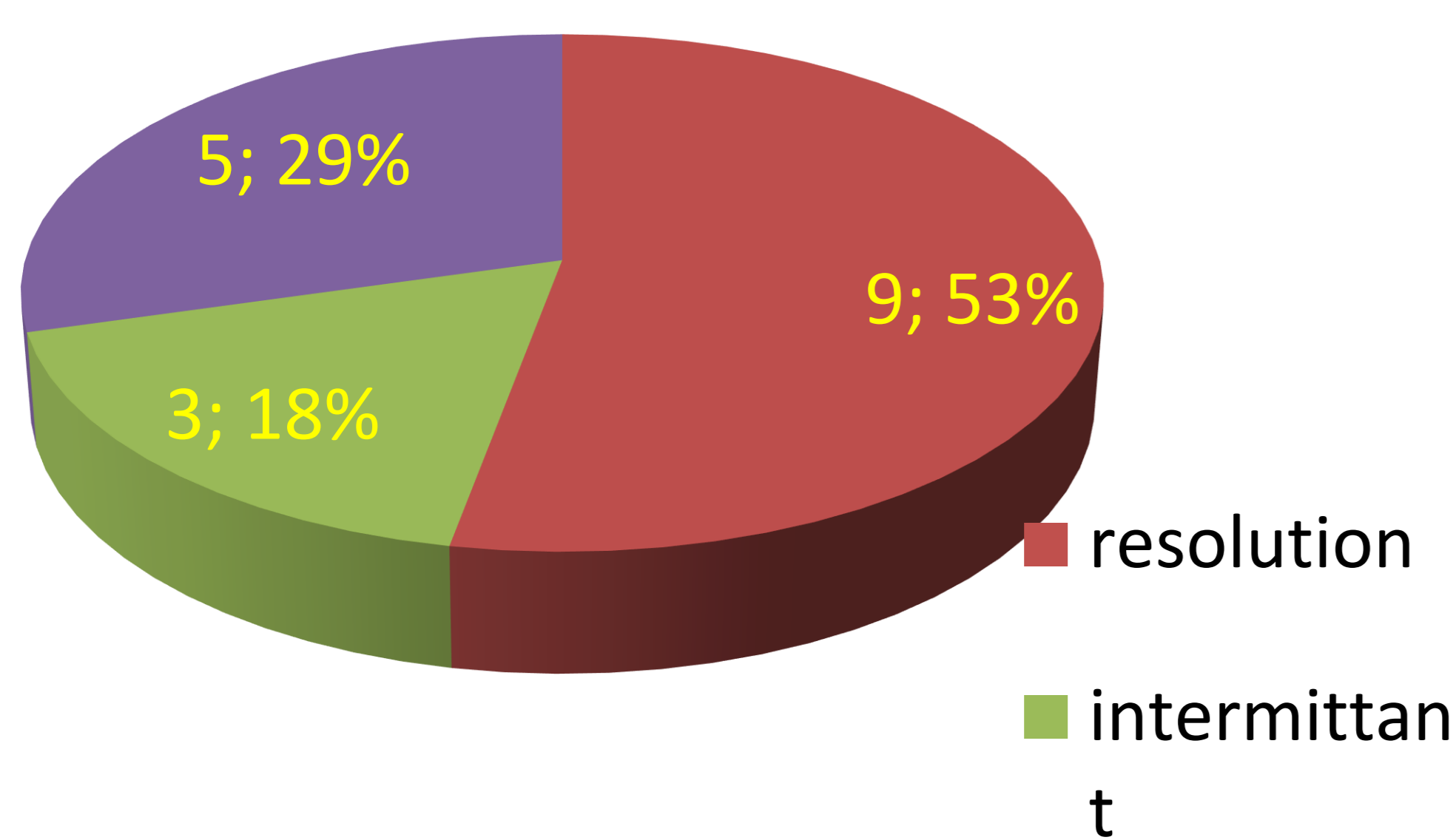


Fig4.evolution of MA according to duration of

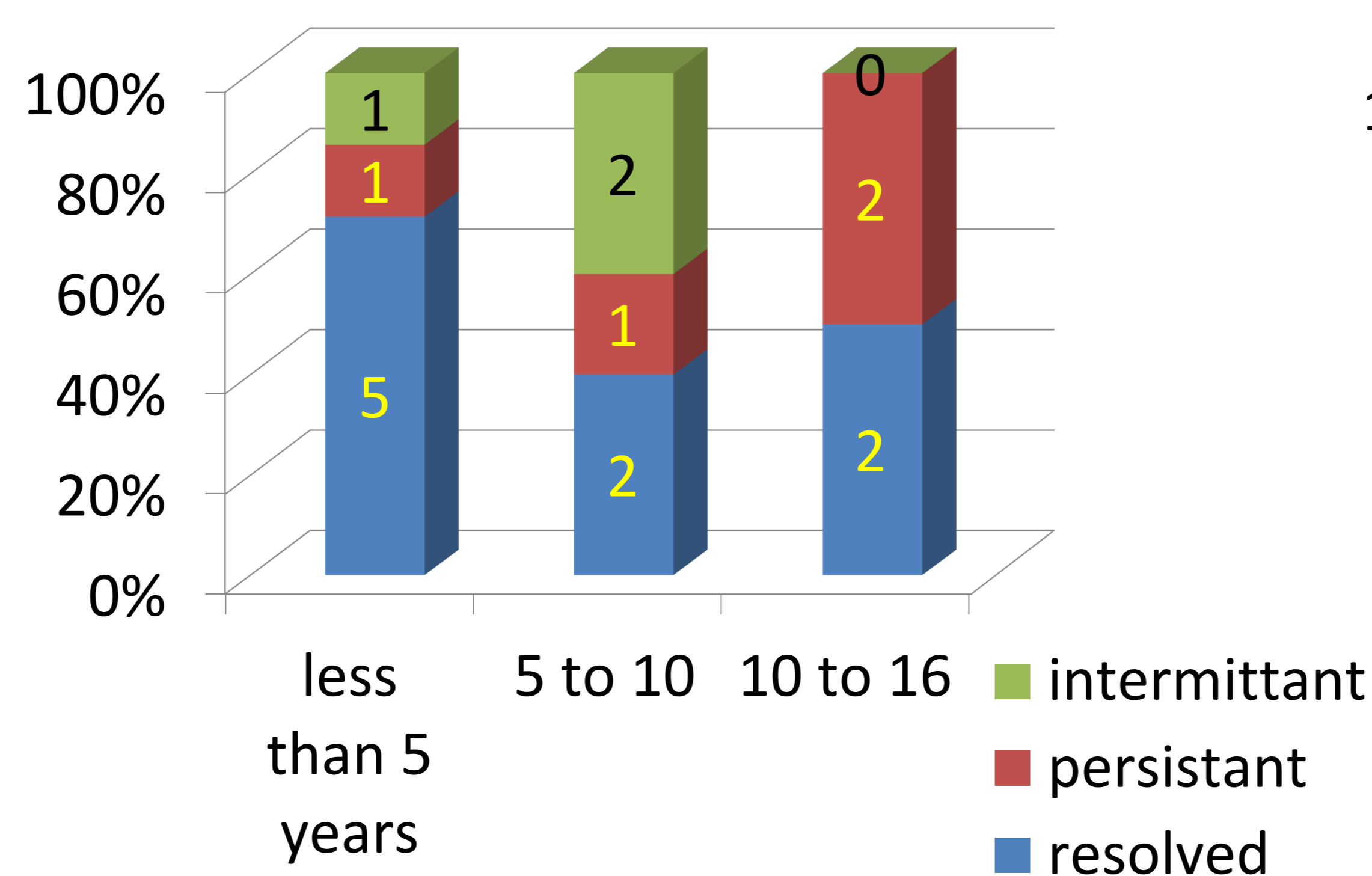
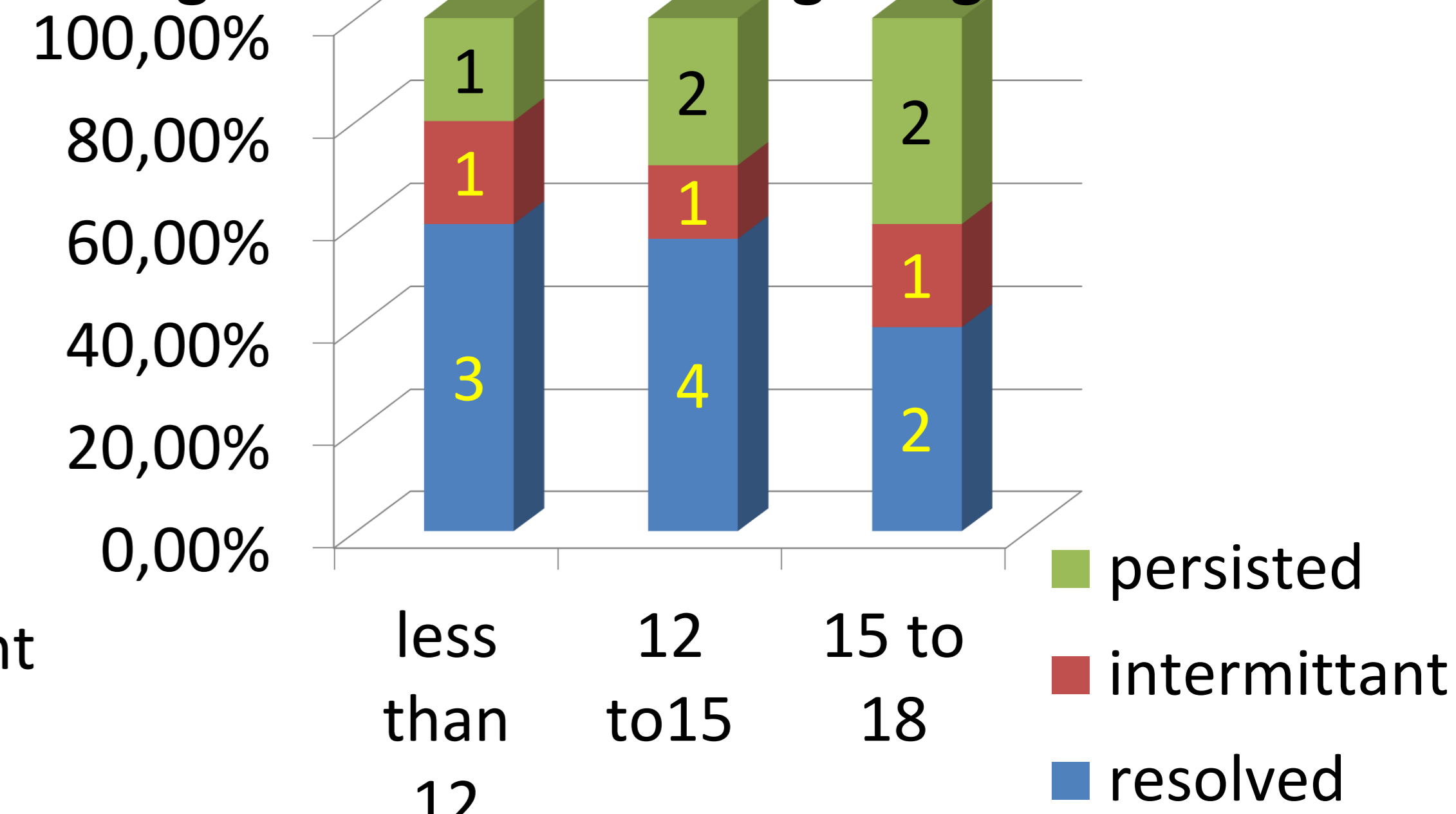


Fig5.Evolution according to age of onset of MA



Conclusions

A significant proportion of patients presented with MA outside recommended screening criteria(> 12 years and >5 years duration).A significant proportion also had good glycemic control.MA either resolved or was non-progressive in the vast majority of patients .

References

NICE guidelines. Diabetes (type 1 and type 2) in children and young people: diagnosis and management.Published August 2015.
Regression of Microalbuminuria in Type 1 Diabetes.Perkins et al.N Engl J Med 2003; 348:2285-2293]